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## Highlights

**Briefings on How to Use the Federal Register—** For details on briefings in Washington, D.C., see announcement in the Reader Aids Section at the end of this issue. An interpreter for hearing impaired persons will be present for the November 16 briefing.

**63509 Will Rogers Day, 1979** Presidential proclamation

**63511 Wright Brothers Day, 1979** Presidential proclamation

**63513 Aid for Kampucheans** Presidential proclamation

**63680 Speed Limit Enforcement** DOT/FHWA proposes regulations requiring a 55 mile-per-hour national maximum speed limit and the monitoring of speeds; comments by 1-4-80 (Part III of this issue)

**63520 Income Tax** Treasury/IRS provides rules concerning taxpayers making election to use a special method of accounting for the redemption of discount coupons

**63515 Mandatory Petroleum Allocation** DOE provides amending regulations to permit the automatic inclusion in the entitlements program of Ethyl Alcohol used as a petroleum substitute; effective 6-1-79

CONTINUED INSIDE



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## Highlights

- 63753 Presidential Election Campaign Fund** FEC intends to issue regulations concerning the suspension of matching fund payments to candidates who exceed the expenditure limitations; comments by 12-5-79 (Part VIII of this issue)
- 63581 Guaranteed Student Loan Program** HEW/OE provides notice of a special allowance at an annual rate of six and five-eighths percent paid to holders of eligible loans
- 63749 Pesticide Programs** EPA issues regulations on registration, reregistration, and classification procedures; effective 11-5-79 (Part VII of this issue)
- 63740 Powerplant and Industrial Fuel Use** DOE/ERA gives notice of availability of final guidelines for preparation of environmental reports (Part VI of this issue)
- 63720 Aircraft** DOT/FAA publishes final rule on procedures for filing complaints, issuing certain orders, and conducting formal fact finding investigations; effective 11-5-79 (Part IV of this issue)
- 63672 Transportation** DOT/CG published interim regulations modifying the notification requirements for vessels concerning arrivals, departures, hazardous conditions, and certain dangerous cargoes; effective 12-5-79; comments by 12-20-79 (Part II of this issue)
- 63760 Housing** HUD/Office of the Assistant Secretary for Policy Development and Research solicits comments on draft rehabilitation guidelines; comments by 12-31-79 (Part X of this issue)
- 63524 National Environmental Policy** PS adopts regulations implementing the procedural provisions of the Act; effective 11-5-79
- 63756 Presidential Election Campaign Fund** FEC issues regulations requiring a candidate to certify that he or she has not exceeded and will not exceed the expenditure limitations (Part IX of this issue)
- 63605 Sunshine Act Meetings**

### Separate Parts of This Issue

- 63672** Part II, DOT/CG
- 63680** Part III, DOT/FHWA/NHTSA
- 63720** Part IV, DOT/FAA
- 63737** Part V, Interior/OSM
- 63740** Part VI, DOE/ERA
- 63749** Part VII, EPA
- 63753** Part VIII, FEC
- 63756** Part IX, FEC
- 63760** Part X, HUD

# Contents

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

- The President**  
**PROCLAMATIONS**  
 63509 Will Rogers Day, 1979 (Proc. 4698)  
 63511 Wright Brothers Day, 1979 (Proc. 4699)  
 63513 Kampuchean aid for (Proc. 4700)
- Executive Agencies**
- Agricultural Marketing Service**  
**PROPOSED RULES**  
 63547 Filberts grown in Oreg. and Wash.
- Agriculture Department**  
*See also* Agricultural Marketing Service; Forest Service; Soil Conservation Service.
- Army Department**  
*See* Engineers Corps.
- Arts and Humanities National Foundation**  
**NOTICES**  
**Meetings:**  
 63583 Expansion Arts Advisory Panel  
 63583 Media Arts Advisory Panel  
 63584 Theatre Advisory Panel; meeting change  
 63584 Visual Arts Advisory Panel (crafts apprenticeships)
- Civil Aeronautics Board**  
**NOTICES**  
 63605 Meetings; Sunshine Act
- Coast Guard**  
**RULES**  
**Boating safety:**  
 63523 Electrical systems on recreational boats  
**Vessel traffic management:**  
 63672 Notifications of arrivals, departures, hazardous conditions, and dangerous cargoes; interim rule and request for comments
- Commerce Department**  
*See also* National Oceanic and Atmospheric Administration.  
**NOTICES**  
 Committees; establishment, renewals, terminations, etc.:  
 63561 National Laboratory Accreditation Criteria Committee for Thermal Insulation Materials
- Commodity Futures Trading Commission**  
**NOTICES**  
 63605 Meetings; Sunshine Act (2 documents)
- Conservation and Solar Energy Office**  
**RULES**  
 63519 Schools, hospitals, and buildings owned by local government, etc.; energy conservation grant programs; first grant program cycle closing date; correction
- Defense Department**  
*See also* Engineers Corps.  
**NOTICES**  
 63562 Medical reimbursement rates for FY 1980; inpatient and outpatient medical care
- Economic Regulatory Administration**  
**RULES**  
 Petroleum allocation and price regulations:  
 63515 Crude oil entitlements program; synthetic fuels; automatic inclusion of ethyl alcohol used as petroleum substitute  
**NOTICES**  
 Consent orders:  
 63565 Delta Drilling Co.  
 Environmental statements; availability, etc.:  
 63740 Powerplant and Industrial Fuel Use Act; availability of guidelines  
 Natural gas; fuel oil displacement certification applications:  
 63564 C. F. Industries, Inc.  
 Powerplant and industrial fuel use; existing powerplants or installations; classification requests:  
 63564 Empire District Electric Co.
- Education Office**  
**NOTICES**  
 63581 Guaranteed student loan program; special allowances  
 63581 Health Education Assistance Loan (HEAL) Program, interest rate  
**Meetings:**  
 63582 Extension and Continuing Education National Advisory Council
- Energy Department**  
*See also* Conservation and Solar Energy Office; Economic Regulatory Administration.  
**NOTICES**  
 Consent orders:  
 63563 Gulf Oil Corp.  
**Meetings:**  
 63562 National Petroleum Council  
**Remedial orders:**  
 63562 Exxon Co.
- Engineers Corps**  
**NOTICES**  
 Environmental statements; availability, etc.:  
 63561 Maline Creek, Mo.; flooded and related land resource problems
- Environmental Protection Agency**  
**RULES**  
 Pesticide programs:  
 63749 Exemption and registration procedures  
**PROPOSED RULES**  
 63552 Clean Air Act; availability of additional modeling data and closing of record of proceedings

- Water pollution control:
- 63552 Disposal sites for dredged or fill material; section 404 guidelines; extension of time
- NOTICES
- Air quality implementation plans; approval and promulgation:
- 63566- Prevention of significant air quality deterioration (PSD); final determinations (6 documents)
- 63571
- Meetings:
- 63572 State FIFRA Issues Research and Evaluation Group
- Federal Aviation Administration**
- RULES**
- Airworthiness directives:
- 63521 Boeing
- 63519 Lockheed
- 63520 McDonnell Douglas
- 63720 Investigation and enforcement procedures; complaint filing procedures, fact finding investigations, etc.
- PROPOSED RULES**
- Airworthiness directives:
- 63547 General Dynamics
- 63548 Control zones and transition areas
- 63549 Transition areas
- Federal Communications Commission**
- PROPOSED RULES**
- Common carrier services:
- 63558 Second computer inquiry; extension of time
- NOTICES
- 63576 FM and television translator applications ready and available for processing
- Hearings, etc..
- 63573 American Telephone & Telegraph Co.
- 63573 Edwards, Mark, et al.
- 63577 Hall Realty & Investment Co., Inc.
- 63578 Myers, Wayne D.
- 63605, Meetings; Sunshine Act (2 documents)
- 63606
- 63579 Witness immunity in adjudicatory proceedings; procedures for handling requests
- Federal Election Commission**
- RULES**
- Presidential election campaign fund and primary matching fund:
- 63756 Expenditure limitations certification; transmittal of regulations to Congress
- PROPOSED RULES**
- 63753 Presidential election campaign fund and primary matching fund; suspension of matching fund payments to candidates who exceed expenditure limitations; inquiry
- NOTICES
- 63707 Meetings; Sunshine Act
- Federal Emergency Management Agency**
- RULES**
- Flood elevation determinations:
- 63534 Arizona et al.
- 63533 California et al.
- 63531 Illinois et al.
- Flood insurance; communities eligible for sale:
- 63529 Alabama et al.
- Flood insurance; special hazard areas:
- 63530 New Jersey et al.
- PROPOSED RULES**
- Flood elevation determinations:
- 63557 Pennsylvania (3 documents)
- 63553 Texas et al.
- Federal Highway Administration**
- RULES**
- Engineering and traffic operations:
- 63680 Maximum speed limit, National; certification and monitoring requirements; extension of time
- PROPOSED RULES**
- Engineering and traffic operations:
- 63682 Maximum speed limit, National; certification of enforcement
- Federal Labor Relations Authority**
- NOTICES**
- 63580 Collective bargaining agreements; obligation to negotiate; policy statement inquiry
- Federal Maritime Commission**
- NOTICES**
- 63580 Agreements filed, etc.
- 63607 Meetings; Sunshine Act
- Federal Railroad Administration**
- NOTICES**
- Loan guarantee applications:
- 63587 Chicago, Milwaukee, St. Paul & Pacific Railroad Co.
- Federal Reserve System**
- NOTICES**
- 63608 Meetings; Sunshine Act
- Federal Trade Commission**
- PROPOSED RULES**
- Prohibited trade practices; consent orders:
- 63550 Shell Oil Co.
- Forest Service**
- NOTICES**
- 63559 Surety bonding policy; modification
- Health, Education, and Welfare Department**
- See Education Office; National Institute of Education.
- Housing and Urban Development Department**
- NOTICES**
- 63760 Rehabilitation guidelines, draft; inquiry
- Interior Department**
- See also Land Management Bureau; National Park Service; Surface Mining Office.
- RULES**
- Procurement:
- 63529 Indian preference in employment, training, and subcontracting; correction
- Internal Revenue Service**
- RULES**
- Income taxes:
- 63520 Redemption costs of discount coupons; temporary regulations



<p><b>NOTICES</b>  <b>Authority delegations:</b>  63588 Service Center Directors; filing of returns</p>	<p><b>National Science Board</b>  <b>NOTICES</b>  63608 Meetings; Sunshine Act</p>
<p><b>Interstate Commerce Commission</b>  <b>NOTICES</b>  <b>Motor carriers:</b>  63602 Agricultural cooperative transportation; filing notices  63593 Permanent authority applications  63593 Permanent authority applications; correction  63596 Temporary authority applications  63593 Temporary authority application; correction  <b>Railroad car service orders; various companies:</b>  63594 Kansas City Terminal Railway Co. (2 documents)  <b>Railroad operation, acquisition, construction, etc.:</b>  63595 Seattle &amp; North Coast Railroad Co.  <b>Railroad services abandonment:</b>  63593 Chicago, Milwaukee, St. Paul &amp; Pacific Railroad Co.  63593 Chicago &amp; North Western Transportation Co.  63594, Seaboard Coast Line Railroad Co. (3 documents)  63595</p>	<p><b>National Science Foundation</b>  <b>NOTICES</b>  63584 Antarctic Conservation Act of 1978; permit applications received</p> <p><b>Nuclear Regulatory Commission</b>  <b>RULES</b>  <b>Radiation protection standards:</b>  63515 Regions III and V Offices; telephone number changes  <b>NOTICES</b>  <b>Applications, etc.:</b>  63585 Iowa State University  63585 New York State University  63585 Northern States Power Co.  63587 Vermont Yankee Nuclear Power Corp.  <b>Meetings:</b>  63586 Nuclear Power Plant Construction During Adjudication Advisory Committee  63609 Meetings; Sunshine Act</p>
<p><b>Land Management Bureau</b>  <b>NOTICES</b>  <b>Applications, etc.:</b>  63582 New Mexico (2 documents)</p>	<p><b>Postal Service</b>  <b>RULES</b>  63524 National Environmental Policy Act; implementation</p>
<p><b>Legal Services Corporation</b>  <b>NOTICES</b>  63583 Grants and contracts; applications  63608 Meetings; Sunshine Act (2 documents)</p>	<p><b>Securities and Exchange Commission</b>  <b>NOTICES</b>  63609 Meetings; Sunshine Act</p>
<p><b>Management and Budget Office</b>  <b>NOTICES</b>  63603 Agency forms under review</p>	<p><b>Soil Conservation Service</b>  <b>NOTICES</b>  <b>Environmental statements; availability, etc.:</b>  63559 Batavia Kill Watershed, N.Y.  63560 Upper Culotches Bay Watershed, Ark.</p>
<p><b>National Highway Traffic Safety Administration</b>  <b>RULES</b>  63680 Speed limit; national maximum; certification and monitoring requirements; extension of time  <b>PROPOSED RULES</b>  63682 Speed limit; national maximum; certification of enforcement</p>	<p><b>Surface Mining Office</b>  <b>PROPOSED RULES</b>  63737 Abandoned mines; land reclamation program; environmental statement; availability and hearings</p>
<p><b>National Institute of Education</b>  <b>NOTICES</b>  <b>Grant programs, application closing dates:</b>  63581 Educational research and development; unsolicited proposals; date change</p>	<p><b>Tennessee Valley Authority</b>  <b>NOTICES</b>  63609 Meetings; Sunshine Act</p>
<p><b>National Oceanic and Atmospheric Administration</b>  <b>PROPOSED RULES</b>  <b>Fishery conservation and management:</b>  63558 Spiny lobster, shallow-water reef fishes, boundary limits, etc.; meetings  <b>NOTICES</b>  <b>Meetings:</b>  63560 Pacific Fishery Management Council</p>	<p><b>Transportation Department</b>  <i>See</i> Coast Guard; Federal Aviation Administration; Federal Highway Administration; Federal Railroad Administration; National Highway Traffic Safety Administration.</p> <p><b>Treasury Department</b>  <i>See also</i> Internal Revenue Service.  <b>NOTICES</b>  <b>Antidumping:</b>  63588 Fresh winter vegetables from Mexico  <b>Notes, Treasury:</b>  63592 G-1983 series</p>
<p><b>National Park Service</b>  <b>NOTICES</b>  <b>Concession permits, etc.:</b>  63583 Bryce Canyon and Zion National Parks</p>	

**Uniformed Services University of the Health Sciences****NOTICES**

63609 Meetings; Sunshine Act

**Veterans Administration****NOTICES**63592 Environmental statements; availability, etc.:  
Fort Gibson National Cemetery, Okla.**MEETINGS ANNOUNCED IN THIS ISSUE**

- ARTS AND HUMANITIES, NATIONAL FOUNDATION**
- 63583 Expansion Arts Advisory Panel, 11-27 through 11-29-79
- 63583 Media Arts Advisory Panel, 11-15 and 11-16-79
- 63584 Theatre Advisory Panel, 11-27 and 11-28-79
- 63584 Visual Arts Advisory Panel (crafts apprenticeships), 11-7 and 11-8-79
- ENERGY DEPARTMENT**
- 63562 National Petroleum Council, Task Group of the Committee on Unconventional Gas Sources, Tight Gas Reservoirs Task Group, 11-28 and 11-29-79
- ENVIRONMENTAL PROTECTION AGENCY**
- 63572 State FIFRA Issues Research and Evaluation Group, 12-5 and 12-6-79
- HEALTH, EDUCATION, AND WELFARE DEPARTMENT**
- Office of Education—
- 63582 Extension and Continuing Education National Advisory Council, 11-18-79

**CFR PARTS AFFECTED IN THIS ISSUE**

A cumulative list of the parts affected this month can be found in the Reader Aids section at the end of this issue.

**3 CFR****Proclamations:**

4698.....63509  
4699.....63511  
4700.....63513

**7 CFR****Proposed Rules:**

982.....63547

**10 CFR**

20.....63515  
21.....63515  
73.....63515  
211.....63515  
450.....63519  
455.....63519

**11 CFR**

9032.....63756  
9033.....63756  
9034.....63756  
9035.....63756

**Proposed Rules:**

9033.....63753

**14 CFR**

13.....63720  
39 (3 documents).....63519-63521

**Proposed Rules:**

39.....63547  
71 (2 documents).....63548, 63549

**16 CFR****Proposed Rules:**

13.....63550

**23 CFR**

658.....63680

**Proposed Rules:**

659.....63682

**26 CFR**

5.....63522

**30 CFR****Proposed Rules:**

870.....63737  
871.....63737  
872.....63737  
873.....63737  
874.....63737  
875.....63737  
876.....63737  
877.....63737  
878.....63737  
879.....63737  
880.....63737  
881.....63737  
882.....63737  
883.....63737  
884.....63737  
885.....63737  
886.....63737  
887.....63737  
888.....63737

**33 CFR**

124.....63672  
126.....63672  
161.....63672  
164.....63672  
183.....63523

**39 CFR**

775.....63524

**40 CFR**

162.....63749

**Proposed Rules:**

Ch. I.....63552  
230.....63552

**41 CFR**

14-1.....63529  
14-7.....63529

**44 CFR**

64.....63529  
65.....63530  
67 (3 documents).....63531-63534

**Proposed Rules:**

67 (4 documents).....63553-63557

**47 CFR****Proposed Rules:**

64.....63558

**50 CFR****Proposed Rules:**

Ch. VI.....63558

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# Presidential Documents

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Title 3—

Proclamation 4698 of November 2, 1979

The President

Will Rogers Day, 1979

By the President of the United States of America

## A Proclamation

November 4, 1979, is the one hundredth anniversary of the birth of America's leading philosopher-humorist, Will Rogers.

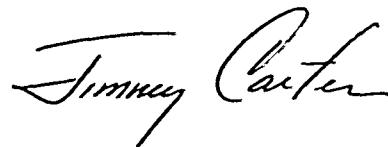
His commentary on people and events in public life amused us all—and made us a little wiser, too. He judged people with penetrating insight, but with kindness and affection.

He once said, "I never tell jokes. I just watch the government and report the facts." The wit and the wisdom exemplified by that comment made this Nation a better place in which to live.

In recognition of his contribution to the enrichment of our lives, the Ninety-Sixth Congress, by House Joint Resolution 3, has requested the President to designate November 4, 1979, as Will Rogers Day.

NOW, THEREFORE, I, JIMMY CARTER, President of the United States of America, do hereby proclaim Sunday, November 4, 1979, as Will Rogers Day.

IN WITNESS WHEREOF, I have hereunto set my hand this second day of November, in the year of our Lord nineteen hundred seventy-nine, and of the Independence of the United States of America the two hundred and fourth.





## Presidential Documents

Proclamation 4699 of November 2, 1979

### Wright Brothers Day, 1979

By the President of the United States of America

#### A Proclamation

The age of aviation began on December 17, 1903, near Kitty Hawk, North Carolina, when two bicycle makers, Wilbur and Orville Wright, made the first successful flight in an airplane. This achievement brought little acclaim to the Wright Brothers at the time. Today, however, we know it as one of the most important events in our modern world.

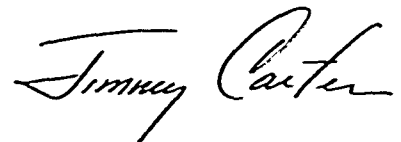
The spirit of the Wright Brothers lives on. The same American ingenuity and persistence has recently been displayed again in the first successful man-powered flight across the English Channel. In June of this year, Bryan Allen pedaled for almost three hours, to propel the Gossamer Albatross, a 60-pound polyester-bodied aircraft designed by Paul MacCready, a distance of 22 miles.

The same spirit has led to the phenomenal development of aviation since the Wright Brothers' first successful flight 76 years ago. Aviation is one of the most important industries in America today, both for jobs and services provided. United States aircraft manufacturers currently have orders for over 1,000 jet transports, and scheduled traffic for United States domestic and international flights this year will exceed 300 million passengers for the first time.

To commemorate the historic achievements of the Wright Brothers, the Congress, by a joint resolution of December 17, 1963 (77 Stat. 402, 36 U.S.C. 169), designated the seventeenth day of December of each year as Wright Brothers Day and requested the President to issue a proclamation annually inviting people of the United States to observe that day with appropriate ceremonies and activities.

NOW, THEREFORE, I, JIMMY CARTER, President of the United States of America, do hereby call upon the people of this Nation, and their local and national governmental officials, to observe Wright Brothers Day, December 17, 1979, with appropriate ceremonies and activities, both to recall the accomplishments of the Wright Brothers and to provide a stimulus to aviation in this country and throughout the world.

IN WITNESS WHEREOF, I have hereunto set my hand this second day of November, in the year of our Lord nineteen hundred seventy-nine, and of the Independence of the United States of America the two hundred and fourth.





## Presidential Documents

Proclamation 4700 of November 2, 1979

### Aid for Kampucheans

By the President of the United States of America

#### A Proclamation

Thirty-seven years ago, a holocaust began that was to take the lives of more than six million human beings. The world stood by silently, in a moral lapse whose enormity still numbs the human mind.

We now face, once again, the threat of avoidable death and suffering for literally millions of people, and this time we must act swiftly to save the men, women, and children who are our brothers and sisters in God's family.

The International Committee of the Red Cross and the United Nations' Children's Fund recently appealed jointly for \$111 million in aid to help the millions of Kampucheans, formerly known as Cambodians, who are facing death from starvation during the next six months. We must respond to this appeal, and we must also respond to the related needs for food, medicine, and shelter for Kampuchean refugees who are fleeing to Thailand.

A major program has been launched by the American government to support this relief effort, but it is too important to be left to the government alone. I am certain that the American people, as individuals and families, through churches, schools, voluntary organizations, and businesses, will want to be a part of this emergency humanitarian response to a desperate and terrible need.

NOW, THEREFORE, I, JIMMY CARTER, President of the United States of America, do hereby call upon all Americans to give generously to the voluntary relief agency of their choice to alleviate this terrible suffering, asking specifically that the donation be earmarked for Kampuchean relief. Further, I hereby designate each Saturday and Sunday in November until Thanksgiving as days for Americans in their synagogues, churches, and other places of worship to donate to this cause, and I call upon leaders of the religious community to take whatever measures are needed to publicize and facilitate these donations.

IN WITNESS WHEREOF, I have hereunto set my hand this second day of November, in the year of our Lord nineteen hundred seventy-nine, and of the Independence of the United States of America the two hundred and fourth.







# Rules and Regulations

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510. The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each month.

## NUCLEAR REGULATORY COMMISSION

### 10 CFR Parts 20, 21, and 73

#### Telephone Number Changes for Regions III and V

**AGENCY:** U.S. Nuclear Regulatory Commission.

**ACTION:** Final Rule.

**SUMMARY:** The Nuclear Regulatory Commission is changing the telephone numbers of its Inspection and Enforcement Regional Office III in Glen Ellyn, Illinois and its Inspection and Enforcement Regional Office V in Walnut Creek, California. Parts 20, 21 and 73 of the Commission's regulations are being amended to show the new telephone numbers for Regional Office III and Regional Office V.

**EFFECTIVE DATE:** November 5, 1979.

**FOR FURTHER INFORMATION CONTACT:** Joseph M. Felton, Director, Division of Rules and Records, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone: (301-492-7211).

**SUPPLEMENTARY INFORMATION:** The U.S. Nuclear Regulatory Commission is changing the telephone numbers of its Inspection and Enforcement Regional Office III in Glen Ellyn, Illinois, and its Inspection and Enforcement Regional Office V in Walnut Creek, California. The new telephone number for each office is as follows:

U.S. Nuclear Regulatory Commission  
Regional Office III—(312) 932-2500.

U.S. Nuclear Regulatory Commission  
Regional Office V—(415) 943-3700.

Because these amendments relate solely to minor procedural matters, good cause exists for omitting notice of proposed rule making, and public procedure thereon, and for making the

amendments effective on November 5, 1979.

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and sections 552 and 553 of Title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 20, 21, and 73 are published as a document subject to codification.

### PART 20—STANDARDS FOR PROTECTION AGAINST RADIATION

1. Appendix D of 10 CFR Part 20 is amended by changing the telephone numbers, both for daytime and nights and holidays, of NRC Regional Office III and NRC Regional Office V to read as follows:

*Appendix D.—U.S. Nuclear Regulatory Commission  
Inspection and Enforcement Regional Offices*

	Telephone		
	Address	Daytime	Nights and holidays
*	*	*	*
Region III	...	(312) 932-2500	(312) 932-2500
*	*	*	*
Region V	...	(415) 943-3700	(415) 943-3700

### PART 21—REPORTING OF DEFECTS AND NONCOMPLIANCE

2. Footnote 1 of 10 CFR Part 21 is amended by changing the telephone numbers of NRC Regional Office III and NRC Regional Office V to read as follows:

1...	
III (Chicago)	(312) 932-2500
*	*
V (San Francisco)	(415) 943-3700

### PART 73—PHYSICAL PROTECTION OF PLANTS AND ANIMALS

3. Appendix A of 10 CFR Part 73 is amended by changing the telephone number, both for daytime and nights and holidays, of NRC Regional Office III and NRC Regional Office V to read as follows:

#### Appendix A.—U.S. Nuclear Regulatory Commission Inspection and Enforcement Regional Offices

	Telephone		
	Address	Daytime	Nights and holidays
*	*	*	*
Region III	...	(312) 932-2500	(312) 932-2500
*	*	*	*
Region V	...	(415) 943-3700	(415) 943-3700

(Sec. 161, Pub. L. 83-703, 68 Stat. 948 (42 U.S.C. 2201); sec. 201, as amended, Pub. L. 93-438, 88 Stat. 1242, Pub. L. 94-79, 89 Stat. 413 (42 U.S.C. 5841))

Dated at Bethesda, Md., this 29th day of October 1979.

For the Nuclear Regulatory Commission,  
Lee V. Gossick,

*Executive Director for Operations.*

[FR Doc. 79-34128 Filed 11-2-79; 8:45 am]

BILLING CODE 7590-01-M

## DEPARTMENT OF ENERGY

### Economic Regulatory Administration

#### 10 CFR Part 211

[Docket No. ERA-R-79-28]

#### Amendments To Permit the Automatic Inclusion in the Entitlements Program of Ethyl Alcohol Used as a Petroleum Substitute

**AGENCY:** Economic Regulatory Administration, Department of Energy.

**ACTION:** Final Rule and Notice of Continuation of Rulemaking Proceeding.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) is amending the Mandatory Petroleum Allocation Regulations (10 CFR Part 211) to permit the automatic inclusion in the crude oil entitlements program of ethyl alcohol derived from domestic biomass when mixed with gasoline for use as fuel in the United States. The purpose of today's amendments is to offset the regulatory bias in favor of petroleum, and against ethyl alcohol used as a petroleum substitute which would otherwise continue until the total deregulation of crude oil prices on September 30, 1981. We are continuing this rulemaking in order to give further consideration as to whether action

should be taken in this proceeding regarding those aspects of the June 1979 proposal pertaining to solid municipal waste and derivatives thereof used as fuel, wood and coal used to supplement petroleum, shale oil used other than in a refinery, and methane derived from municipal sewage or landfills.

**EFFECTIVE DATE:** June 1, 1979.

**FOR FURTHER INFORMATION CONTACT:**

William L. Webb (Office of Public Information), Economic Regulatory Administration, Room B 110, 2000 M Street, NW., Washington, D.C. 20461, (202) 634-2170.

Norman Breckner (Regulations and Emergency Planning), Economic Regulatory Administration, Room 2310, 2000 M Street, NW., Washington, D.C. 20461, (202) 254-7477.

David A. Welsh (Entitlements Program), Economic Regulatory Administration, Room 6125, 2000 M Street, NW., Washington, D.C. 20461, (202) 254-3336.

Jack O. Kendall (Office of General Counsel), Department of Energy, Room 6A-127, 1000 Independence Avenue, SW., Washington, D.C. 20585, (202) 252-6739.

**SUPPLEMENTARY INFORMATION:**

- I. Background
- II. Discussion of Major Comments
- III. Amendments Adopted
- IV. Effective Date
- V. Procedural Matters

**I. Background**

On May 12, 1978, we issued a final rule (43 FR 21429, May 18, 1978) which amended the Mandatory Petroleum Allocation Regulations to provide for the inclusion in the crude oil entitlements program of shale oil produced from domestic sources and used in a refinery. In addition, the final rule provides that other synthetic liquid fuels (as well as shale oil used for non-refining purposes) produced from domestic sources may also earn entitlement benefits, following a review procedure whereby we determine the eligibility of an applicant on a case-by-case basis. On January 19, 1979, we adopted guidelines setting forth the procedures and criteria under which we review each application and determine an applicant's eligibility to participate in the entitlements program (44 FR 6895, February 5, 1979).

The May 1978 final rule permits certain synthetic fuels to receive the same treatment under the entitlements program as crude oil not subject to price regulation. Our purpose in adopting the rule was to eliminate the disincentive to the production and use of these fuels created by our regulatory scheme for petroleum which, through the combined operations of the price regulations and the entitlements program, results in the effective price of all crude oil used in the

United States being lower than the world market price for crude oil.

Our decision to limit eligibility for inclusion in the entitlements program under the May 1978 final rule to those fuels which are in liquid form was based on our understanding at that time that fuels which can be substituted for petroleum are generally in liquid form. However, based on the comments received in response to the May 1978 notice, we concluded that certain additional synthetic fuels in gaseous and solid form, while not necessarily suitable for burning in traditional oil burners, are nevertheless in direct competition with petroleum and represent a significant substitute for crude oil. In addition we determined in view of our experience since adoption of the May 1978 rule that certain other fuels currently restricted to inclusion in the entitlements program on a case-by-case basis should automatically qualify for entitlements.

On May 27, 1979, we issued a notice of proposed rulemaking (44 FR 32225, June 5, 1979) to provide for the automatic inclusion in the entitlements program of solid municipal waste and solid derivatives thereof used as fuel, the coal component of a slurry of coal and petroleum, alcohol derived from biomass when mixed with gasoline to produce gasohol, shale oil used for non-refining purposes, the wood component of mixtures of processed wood and petroleum product, and methane derived from municipal sewage or landfills. We also proposed amendments to permit gaseous fuels derived from solid-waste materials, as well as solid fuels derived from non-municipal solid-waste sources, to be included in the entitlements program on a case-by-case basis.

**II. Discussion of Major Comments**

Comments on the proposed amendments were requested through August 1, 1979. In addition, a hearing on the proposal was held in Washington, D.C. on July 17, 1979. Oral and written comments regarding the proposed amendments were submitted by fifty-four separate respondents, including two public utilities, six governmental bodies, as well as three U.S. Congressmen, three producers of fuel derived from municipal waste, three producers of methane derived from landfills, two paper recycling companies, three agricultural and wood industries, an association of small and independent petroleum refiners, twenty-two firms representing the petroleum industry, an association of solid waste management companies, a steel mill, a developer of a coal and petroleum slurry, a developer of wood

for use in supplementing petroleum, and four interested private citizens.

All commenters indicated agreement that the development of petroleum substitutes is a matter of increasing national importance as our domestic crude oil reserves are rapidly becoming depleted and the price of imported crude oil continues to escalate. However, representatives of the petroleum industry and several other commenters expressed strong opposition to the inclusion of any additional petroleum substitutes in the entitlements program. These commenters shared generally as the basis for their opposition to the proposal the opinion that it would be inherently unfair to require the petroleum industry to in effect subsidize its own competitors.

Several of the commenters objecting to the proposal also expressed concern as to anticipated problems which they believe would result due to substantially increased complexities in administering the entitlements program in the event petroleum substitutes were permitted greater opportunity for participation. Furthermore, opposing commenters were of the consensus that, in view of the scheduled expiration of our authority to regulate petroleum prices on September 30, 1981, too little time remains to provide any meaningful incentive to the development of petroleum substitutes by including them in the entitlements program. In this regard, several commenters indicated apprehension that adoption of the proposed amendments might precipitate a concerted lobbying effort by the new recipients of entitlements to seek legislation extending the program.

Finally, several dissenting commenters argued that, regardless of policy considerations, adoption of the proposed amendments would not be appropriate in any event. In support of their position, these commenters emphasized the view that the granting of entitlement benefits to petroleum substitutes, with the possible exception of shale oil, is not only inconsistent with the purposes for which the entitlements program was established but beyond the scope of our statutory authority as well.

In response to the above described objections to the proposed amendments, we first wish to emphasize that it is not appropriate generally to characterize the inclusion of petroleum substitutes in the entitlements program (by allowing a run credit for a barrel equivalent) as a means of subsidizing such alternatives to crude oil. Rather, as indicated in the proposal, our intention in granting entitlements to any synthetic fuel is to remove the economic disincentive resulting from the regulatory bias

against that fuel under our regulatory scheme for petroleum. The removal of the regulatory bias against petroleum substitutes should promote public recognition and use of these alternatives to crude oil by placing such fuels on a parity with refined petroleum products, thereby simulating now the competitive situation that will exist in October, 1981, following full deregulation of crude oil. Thus the run credit entitlement here provided will gradually diminish and expire in conjunction with the phasing out of crude oil price controls.

We believe the inclusion of petroleum substitutes in the entitlements program would be justified even if a substantial increase in administrative burden could be expected. However, based on the comments submitted by producers of petroleum substitutes, we believe that opportunities for participation by petroleum substitutes in the entitlements program can be increased significantly without resulting in an excessive increase in administrative burdens on either the DOE or the petroleum industry.

We recognize that a primary intent in establishing the original entitlements program was to equalize the weighted average crude oil costs of all refiners as a means of ensuring that the benefits of domestic crude oil price regulations are equitably distributed. However, entitlements for residual fuel oil imported into the East Coast market, long a feature of the entitlements program, do not equalize costs to refiners, but rather are intended to equitably allocate the benefits of domestic price controls to domestic purchasers of that product. Furthermore, shale oil, which we have determined is not petroleum under the Emergency Petroleum Allocation Act of 1973 (EPAA, 15 U.S.C. 751 *et seq.*, Pub. L. 93-159, as amended), as well as, on a case-by-case basis, other liquid petroleum substitutes have been included in the entitlements program for the express purpose of reducing economic distortion and of implementing the price regulations in a fair and equitable manner. Finally, we believe that appropriate safeguards with respect to this objective are provided by the formulation of the June 1979 proposals which would insure that the adoption of the proposals would not have any significant impact on the value of an entitlement. In view of these considerations, we have concluded that the granting of entitlements to petroleum substitutes is not inconsistent with the objectives of the entitlements program. Moreover, we believe the proposed amendments might promote both our

mandate under the EPAA to minimize economic distortion resulting from our regulations and our duty under the Federal Energy Administration Act of 1974 (15 U.S.C. 787 *et seq.*, Pub. L. 93-275, as amended) to insure that our energy programs are designed and implemented in a fair and equitable manner.

We also recognize that, in view of the President's decision to gradually deregulate crude oil prices between January 1, 1980 and October 1, 1981, an increasing percentage of domestic crude oil production will be permitted to sell at world market prices. However, the operation of the entitlements program during this period will continue to result in the effective price of all crude oil used in the United States being lower than the world market price for crude oil. Furthermore, the regulatory bias against any petroleum substitute which this system may be creating will also continue unless preventive action is taken.

In view of the above considerations, we intend to adopt in this rulemaking proceeding any of the June 1979 proposals which we believe to be administratively feasible and otherwise appropriate as a means of eliminating any adverse effects on petroleum substitutes which we determine to be resulting from the operation of the petroleum regulations. Having made such findings with respect to the proposal pertaining to ethyl alcohol, we are today adopting amendments which will provide for the automatic inclusion in the entitlements program of ethyl alcohol derived from domestic biomass and mixed with gasoline for use as fuel in the United States. Our decision regarding ethyl alcohol is not intended to imply the possible nature of any final determinations we may make with respect to any of the other fuels covered by the June 1979 notice of proposed rulemaking. We are continuing our evaluation of the comments submitted in this proceeding and other relevant information.

### III. Amendments Adopted

As indicated above, we are adopting amendments to provide for the automatic inclusion in the entitlements program of ethyl alcohol derived from biomass and mixed with gasoline for use as fuel in the United States. Our decision to provide for the automatic inclusion of ethyl alcohol but not methyl alcohol is based on our conclusion after reviewing the comments that the use of alcohol as a fuel in the United States is generally limited to the use of ethyl alcohol in mixture with gasoline. However, all alcohol derived from

domestic biomass, regardless of whether it is mixed with gasoline, will continue to be eligible for inclusion in the entitlements program on a case-by-case basis.

As indicated in the June 1979 proposal, we believe that the issuance of entitlements with respect to a petroleum substitute should reflect the comparative heating value of the petroleum substitute relative to that of crude oil. Therefore, today's final rule provides, consistent with our proposal, that a producer of ethyl alcohol will earn 0.6189 run credits for each barrel of ethyl alcohol produced and used in a mixture with gasoline as fuel. We have determined based on our analysis that ethyl alcohol contains 61.89 percent of the btus of an equal volume of crude oil. We believe that using this percentage figure will ease the administrative burden of the program in that producers would not have to calculate the relative heating value of ethyl alcohol as compared to crude oil.

Since alcohol is used in producing alcoholic beverages and in many other industrial uses, the final rule requires appropriate certification by the producer to insure that entitlements are issued only with respect to ethyl alcohol actually mixed with gasoline for domestic use as fuel. Specifically, the producer will be issued entitlements only upon written certification by the producer to the ERA that (1) the producer has actually mixed the ethyl alcohol with gasoline and used the resulting mixture domestically as fuel or sold the mixture for domestic use as fuel; or (2), in any case where the producer sells the ethyl alcohol prior to mixing with gasoline, the producer has received written certification from a subsequent purchaser that such purchaser has been the first person to mix the ethyl alcohol with gasoline and that such purchaser has used the mixture domestically as fuel or sold the mixture for domestic use as fuel. We are continuing this rulemaking and are requesting comments with respect to any changes in these certification procedures which will ease the administrative burden while assuring that ethyl alcohol is mixed with gasoline.

Entitlements will not be issued to a producer of ethyl alcohol prior to demonstration by the producer that it has obtained all applicable permits and licenses required by local, State or Federal authorities. In addition, the producer may be required to submit to the ERA any information submitted to the Federal Bureau of Alcohol, Tobacco, and Firearms or to any other

governmental authority for purposes of obtaining a license or permit to produce, distribute or otherwise use alcohol.

We are also adopting general recordkeeping provisions to require that the producer maintain records verifying any information submitted to the ERA for purposes of receiving entitlements. In this regard, in any case where a producer reports to the ERA for purposes of receiving entitlements with respect to ethyl alcohol blended with gasoline by a subsequent purchaser of the alcohol, the producer may be issued entitlements only if the required certification to the producer by the ultimate blender states that the blender (1) has documented that the ethyl alcohol has been mixed with gasoline and that the resulting mixture has been used or sold for domestic use as fuel and (2) that the purchaser will maintain the documentation in a manner so as to be available for inspection at any time by the ERA within five years.

We believe today's final rule to provide for the automatic inclusion in the entitlements program of ethyl alcohol mixed with gasoline will further heighten the recent interest in alcohol resulting from sharp increases in gasoline prices and reduced gasoline allocations. However, we wish to emphasize that today's final rule is not intended and should not be implied to permit any use of ethyl alcohol in derogation of Section 211(f) of the Clean Air Act (42 U.S.C. 7401 *et seq.*) which restricts the use of alcohol/gasoline blends which do not conform with the provisions of that Act.

#### IV. Effective Date

We indicated in the June proposal that, in the event we determined to issue a final rule in this proceeding, it was our tentative determination that any amendments adopted thereby should be made effective June 1, 1979. This determination was based both on our belief that any action to remove the regulatory bias against synthetic fuels should be made effective as soon as possible and to ensure that production and use of these fuels as crude oil alternatives would not be interrupted pending our final determinations with regard to the proposals. In view of these considerations, it is our final determination that the effective date of today's final rule be June 1, 1979, as proposed. For these same reasons, any further final rule issued in this proceeding which pertains to other aspects of the June proposal may also be made effective June 1, 1979.

#### V. Procedural Matters

We stated in the June 1979 notice of proposed rulemaking the reasons for our preliminary conclusion that the preparation of a regulatory analysis was not required for the proposals under Executive Order No. 12044, entitled "Improving Government Regulations" (43 FR 1266, March 24, 1978), or DOE's implementing Order 2030 (44 FR 1032, January 3, 1979). While today's final rule will implement only certain aspects of the June 1979 proposals, we wish to announce our final decision after reviewing all comments received that the preparation of a regulatory analysis is not required with respect to any or all of the petroleum substitutes proposed in this proceeding. This decision is based on the following determinations:

(1) The proposals would not be likely to have a substantial effect on any of the objectives of national energy policy or energy statutes;

(2) The regulations would not be likely to impose:

(a) Gross economic costs of \$100 million per year; or

(b) A major increase in costs or prices for individual industries, levels of government, geographic regions, or demographic groups;

(3) The regulations would not be likely to have an adverse impact on competition; and

(4) Neither the Secretary, Deputy Secretary, or Under Secretary of the DOE considers the regulations likely to have a major impact for any other reason.

As requested by the Administrator of the Environmental Protection Agency, we have also reviewed the June 1979 proposals in order to reassess their environmental implications in view of the comments received. It is our final conclusion that the June 1979 proposals would not constitute a major federal action significantly affecting the quality of the human environment within the meaning of section 102(2)(C) of the National Environmental Policy Act and, therefore, that the preparation of an Environmental Impact Statement for this proposal is not required under 10 CFR Part 208.

Pursuant to the requirements of section 404(a) of the Department of Energy Organization Act (42 U.S.C. 7101 *et seq.*, Pub. L. 95-91), a copy of the June 1979 proposal was referred, concurrently with the issuance thereof, to the Federal Energy Regulatory Commission for its review. The Commission has informed us of its determination that the proposed rule would not significantly affect any matter within the Commission's jurisdiction.

(Emergency Petroleum Allocation Act of 1973, 15 U.S.C. 751 *et seq.*, Pub. L. 93-159, as amended, Pub. L. 93-511, Pub. L. 94-99, Pub. L. 94-133, Pub. L. 94-163, and Pub. L. 94-385; Federal Energy Administration Act of 1974, 15 U.S.C. 787 *et seq.*, Pub. L. 93-275, as amended, Pub. L. 94-332, Pub. L. 94-385, Pub. L. 95-70, and Pub. L. 95-91; Energy Policy and Conservation Act, 42 U.S.C. 6201 *et seq.*, Pub. L. 94-163, as amended, Pub. L. 94-385, Pub. L. 95-70, Pub. L. 95-619, and Pub. L. 98-30; Department of Energy Organization Act, 42 U.S.C. 7101 *et seq.*, Pub. L. 95-91, Pub. L. 95-509, Pub. L. 95-619, Pub. L. 95-620, and Pub. L. 95-621; EO 11790, 39 FR 23185; EO 12009, 42 FR 46267.)

In consideration of the foregoing, Part 211 of Chapter II, of Title 10 of the Code of Federal Regulations, is amended as set forth below, effective June 1, 1979.

Issued in Washington, D.C., October 31, 1979.

David J. Bardin,  
Administrator, Economic Regulatory  
Administration.

1. Section 211.62 is amended to revise the definition of "petroleum substitute" to read as follows:

#### § 211.62 Definitions.

\* \* \* \* \*

"Petroleum substitute" means (a) a liquid produced from oil shale found in the United States and used as a feedstock or fuel in a domestic refinery; (b) ethyl alcohol derived from domestic biomass when mixed with gasoline and certified for use as fuel in the United States in accordance with the provisions of § 211.67(a)(5) of this Part; and (c) such other liquid synthetic fuels as are designated pursuant to orders issued by the ERA. Applications for such orders may be submitted to ERA under Subpart G of Part 205 of this Chapter. In order to be designated a petroleum substitute, a liquid synthetic fuel must be found by the ERA to be derived from domestic biomass, coal, oil shale, solid waste materials or tar sands, and used in the United States as a feedstock to a refinery, a blending feedstock or as a boiler fuel in a refinery or elsewhere. The ERA may, in its discretion, deny such designation if it determines that the liquid synthetic fuel in question does not result in a net gain of energy, considering the fuel consumption involved in its production, or requires the consumption of substantial quantities of a relatively scarce fuel for its production.

\* \* \* \* \*

2. Section 211.67 is amended by revising subparagraph (5) of paragraph (a) to read as follows:

#### § 211.67 Allocation of domestic crude oil. (a) Issuance of entitlements.

\* \* \* \* \*

(5)(i) For each month, commencing with the month of June 1979, entitlements shall be issued with respect to a petroleum substitute as follows:

(A) In the case of shale oil used as a feedstock or fuel in a domestic refinery, the refiner shall be issued that number of entitlements that would be received by the refiner if each barrel of the shale oil were a barrel of crude oil;

(B) In the case of ethyl alcohol derived from domestic biomass and mixed with gasoline, the producer of the ethyl alcohol shall be issued that number of entitlements that would be received by a refiner if a barrel of ethyl alcohol were equal to 0.6189 barrels of crude oil; *provided, that*, entitlements will be issuable to a producer of ethyl alcohol only upon written certification by the producer to ERA that (i) the producer has actually mixed the ethyl alcohol with gasoline and used the resulting mixture domestically as fuel or sold the mixture for domestic use as fuel; or (2), in any case where the producer sells the ethyl alcohol prior to mixing with gasoline, the producer has received written certification from a subsequent purchaser that such person (i) has been the first person to actually mix the ethyl alcohol with gasoline; (ii) has used the resulting mixture domestically as fuel or sold the mixture for domestic use as fuel; (iii) has based certification as to such use or sale upon documentation; and (iv) will maintain such documentation in a manner so as to be available for inspection at any time by the ERA within five years.

(C) In the case of a liquid petroleum substitute which has been designated as a petroleum substitute by ERA in an order issued pursuant to § 205.95 or Part 205 of this Chapter and which has a gross heating value of 5.7 million or more BTU's per barrel, that person designated by the ERA as eligible to participate in the entitlements program with respect to the petroleum substitute shall be issued that number of entitlements that would be received by a refiner if a barrel of the petroleum substitute were a barrel of crude oil.

(D) In the case of a liquid petroleum substitute which has been designated as a petroleum substitute by ERA in an order issued pursuant to § 205.95 of Part 205 of this Chapter and which has a gross heating value of less than 5.7 million BTU's per barrel, that person designated by the ERA as eligible to participate in the entitlements program with respect to the petroleum substitute shall be issued that number of entitlements that would be received by a refiner if a barrel of the petroleum substitute were equal to a fraction of a barrel of crude oil, the numerator of

which would be the gross heating value in BTU's per barrel of the petroleum substitute, and the denominator of which would be 5.7 million BTU's. Where a petroleum substitute (other than ethyl alcohol derived from domestic biomass and mixed with gasoline) is being used for purposes other than in a refinery, ERA will designate the firm to which entitlements will be issued and the manner in which the use of the petroleum substitute by that firm shall result in entitlements issuances.

(ii) Each firm shall in its initial report to ERA for purposes of receiving entitlements pursuant to the provisions of subparagraph (a)(5)(i) of this section submit written certification that all local, state, or federal permits or licenses required with respect to the production, distribution or any other use of the petroleum substitute have been obtained and provide copies of such permits and licenses and, as required by ERA, any information submitted to a governmental body for the purpose of obtaining any applicable permit or licenses. Each such firm shall in its initial report and each month thereafter submit any information required by ERA to be submitted by such firm on forms adopted by ERA for purposes of determining the entitlements issuable to such firm. A firm shall provide written certification in any submission that the information set forth therein is accurate and based upon documentation, and, further, that such firm will maintain such records in a manner so as to be available for inspection at any time by the ERA within five years. Records required to be kept under this subparagraph shall be made available for inspection at any time upon the request of a representative of ERA.

\* \* \* \* \*

[FR Doc 79-34149 Filed 11-2-79; 8:45 am]  
BILLING CODE 6450-01-M

## Office of Conservation and Solar Energy

### 10 CFR Parts 450 and 455

#### Grant Programs for Schools and Hospitals, and Buildings Owned by Units of Local Government and Public Care Institutions

#### Correction

In FR Doc. 79-32811, published on page 61317, on Wednesday, October 24, 1979, in the first column, in the last line of the "SUMMARY", "October 24, 1975"

should be corrected to read "October 24, 1979".

BILLING CODE 1505-01-M

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 79-WE-19-AD; Amdt. 39-3602]

#### Airworthiness Directives; Lockheed Model L-1011-385 Series Airplanes

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Final rule.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) which requires repetitive inspections and eventual modification of the pressurization system outflow valve assemblies on Lockheed L-1011 airplanes by adding reinforcement plates at both ends of each outflow gate valve. This AD is necessary to prevent the separation of the adhesive bond between the gate frame, skin and honeycomb structure and prevent this cause of inadvertent rapid decompression of the aircraft cabin in flight.

**DATES:** Effective December 6, 1979.

Compliance schedule—As prescribed in the body of the AD.

**ADDRESSES:** The applicable service information may be obtained from: Lockheed California Company, Burbank, California 91520.

Also, a copy of the service information may be reviewed at, or a copy obtained from:

Rules Docket in Room 916, FAA, 800 Independence Avenue, S.W., Washington, D.C. 20581, or  
Rules Docket in Room 6W14, FAA Western Region, 15000 Aviation Boulevard, Hawthorne, California 90261.

#### FOR FURTHER INFORMATION CONTACT:

Jerry Presba, Executive Secretary, Airworthiness Directive Review Board, Federal Aviation Administration, Western Region, P.O. Box 92007, World Way Postal Center, Los Angeles, California 90009. Telephone: (213) 536-6351.

**SUPPLEMENTARY INFORMATION:** A proposal to amend Part 39 of the Federal Aviation Regulations to include an airworthiness directive requiring repetitive inspections and eventual modification of the pressurization system outflow valve assemblies on Lockheed L-1011 airplanes was published in the Federal Register at FR 45-960. The proposal was prompted by a

report of loss in cabin pressurization which was determined to be related to separation of the outflow valve gate frame, skin and honeycomb structure.

Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all comments received in response to this notice.

Several commenters recommended that both the inspection interval and the modification schedule be extended on the basis that the reported incident was an isolated case, based upon inspection results of operator fleets indicating no discrepancies, and upon anticipated lead time required for modification which may produce disruption of airline scheduled service.

The FAA continues to believe that this condition is likely to exist in other products of the same type design, (i.e., it has not been proven to be an isolated case), and, therefore, will proceed with the AD.

The FAA has evaluated comments relative to inspection interval and modification schedule and concurs that adequate safety levels can be maintained with expansion of the inspection interval to 800 hours from the 400 hours' time in service proposed in the notice. Further, revision of the modification schedule from 1800 hours to 2400 hours is considered acceptable from a safety consideration and the AD has been so modified.

Additionally, one commenter requested that the language of the proposal be amended to limit the requirement for special flight authorizations by revising the special flight permit paragraph. Paragraph (c) of the AD has been so revised.

After careful review of all available data, including the comments above, the FAA has determined that sufficient evidence exists in the public interest in aviation safety to adopt the proposed rule with the relieving changes noted above.

#### Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, § 39.13 of Part 39 of the Federal Aviation Regulations (14 CFR 39.13) is amended, by adding the following new airworthiness directive:

**Lockheed California:** Applies to Model L-1011-385 series airplanes certificated in all categories.

Compliance required as indicated unless already accomplished.

To prevent rapid loss of cabin pressurization in flight, accomplish the following:

(a) Within 800 hours' time in service after the effective date of this AD and thereafter at intervals not to exceed 800 hours' time in service until modified in accordance with paragraph (b) of this AD, inspect forward and aft outflow valve gates for delamination in accordance with the instructions contained in Lockheed Service Bulletin No. 093-21-157 dated May 1, 1979, Section 2B ("Full inspection of outflow valves"). Gates found defective must be removed and replaced with a part free from bond joint separation prior to further flight.

(b) Within 2400 hours' time in service after the effective date of this AD, modify the outflow valve assemblies in accordance with Hamilton Standard Service Bulletin 21-1141 dated March 28, 1979.

(c) Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate airplanes in pressurized flight to a base for the accomplishment of inspections or modifications required by this AD. No special flight permit is required to operate the airplane unpressurized to a base for the accomplishment of inspections or modifications required by this AD.

(d) Alternative inspections, modifications or other actions which provide an equivalent level of safety may be used when approved by the Chief, Aircraft Engineering Division, FAA Western Region.

This amendment becomes effective December 6, 1979.

[Secs. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)); and 14 CFR 11.89]

Issued in Los Angeles, California on October 23, 1979.

William R. Krieger,

*Acting Director, FAA Western Region.*

[FR Doc. 79-34142 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

#### 14 CFR Part 39

[Docket No. 79-WE-8-AD; Amdt. 39-3603]

#### Airworthiness Directives; McDonnell Douglas DC-10 Series Airplanes

**AGENCY:** Federal Aviation Administration (FAA) DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment amends an existing airworthiness directive (AD) applicable to McDonnell Douglas DC-10 airplanes which require upper wing/VHF antenna anti-ice system testing and an eventual system modification. The amendment is needed to include an additional DC-10 airplane in the applicability of the AD.

**DATES:** Effective November 1, 1979.

Compliance schedule—As prescribed in the body of the AD.

**FOR FURTHER INFORMATION CONTACT:** Jerry Presba, Executive Secretary,

Airworthiness Directive Review Board, Federal Aviation Administration, Western Region, P.O. Box 92007, World Way Postal Center, Los Angeles, California 90009. Telephone: (213) 536-6351.

**SUPPLEMENTARY INFORMATION:** This amendment amends Amendment 39-3541, AD 79-18-03 which currently requires inspection, test and eventual modification of the upper wing/VHF antenna anti-ice system on certain McDonnell Douglas Model DC-10 airplanes.

Since issuing Amendment 39-3541, the FAA has learned that an additional airplane should have been included in the effectivity of the AD. Additionally, a typographical error existed in the "Note" which erroneously identified Service Bulletin 30-47 as 50-47.

Since an unsafe condition would otherwise exist on the additional airplane, the FAA is amending this Amendment 39-3541 to include the subject airplane in the AD coverage and to correct the typographical error which appears in a "Note."

Since the deficiency affects air safety and this clarifying amendment is essential to the AD, notice and public procedure hereon are impractical and good cause exists for making the amendment effective in less than thirty days.

#### Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, § 39.13 of Part 39 of the Federal Aviation Regulations (14 CFR 39.13) is amended by amending Amendment 39-3541, AD 79-18-03 to read in pertinent part as follows:

\* \* \* \* \*

McDonnell Douglas: Applies to DC-10-10, -10F, -30, -30F and -40 airplanes. Serial numbers corresponding to manufacturer's fuselage Numbers 1 through 258, certificated in all categories.

(c) Within one year \* \* \*, FAA Western Region.

**Note.**—McDonnell Douglas Service Bulletin 30-47 dated December 5, 1978 and/or Revision 1 dated May 22, 1979 provide a satisfactory method of accomplishment.

\* \* \* \* \*

This amendment becomes effective November 1, 1979.

(Secs. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)); and 14 CFR 11.89)



Issued in Los Angeles, California on October 23, 1979.

William R. Krieger,

Acting Director, FAA Western Region.

[FR Doc. 79-34143 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

#### 14 CFR Part 39

[Docket No. 79-NW-21-AD; Amdt. 39-3605]

#### Boeing Model 727 and 737 Series Airplanes; Air Worthiness Directives

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

**SUMMARY:** This amendment adopts an Airworthiness Directive (AD) that requires those operators of Boeing 727 and 737 series airplanes with the "carry-all" interior to replace all of the passenger service unit (PSU) oxygen manifold straight orifice fittings with redesigned barbed orifice fittings. This change is necessary because some passenger oxygen mask supply tubes pull off the PSU valve and manifold assembly straight orifice fittings too easily, thereby creating the potential for loss of passenger oxygen when needed during an emergency.

**DATES:** Effective date November 15, 1979. Compliance time as described in the body of this AD.

**ADDRESS:** Boeing service bulletins and the Puritan-Bennett service letter specified in this directive may be obtained upon request to Boeing Commercial Airplane Company, P.O. Box 3707, Seattle, Washington, 98124. These documents may also be examined at FAA Northwest Region, 9010 East Marginal Way South, Seattle, Washington 98108.

**FOR FURTHER INFORMATION CONTACT:** Mr. Mark I. Quam, Systems and Equipment Section, ANW-213, Engineering and Manufacturing Branch, FAA Northwest Region, 9010 East Marginal Way South, Seattle, Washington 98108, telephone (206) 767-2500.

#### SUPPLEMENTARY INFORMATION:

##### History

A Notice of Proposed Rulemaking (NPRM) was issued on July 30, 1979 (14 FR 46855). That NPRM would require those operators of Boeing 727 and 737 series airplanes with the "carry-all" interior to replace all of the passenger service unit (PSU) manifold straight orifice fittings with redesigned barbed orifice fittings and new O-rings within 1,200 hours time-in-service or six (6) months after the effective date of the

proposed AD, whichever came first. This change is considered necessary because some passenger oxygen mask supply tubes pull off the straight orifice fittings too easily, thereby creating the potential for loss of passenger oxygen when needed during an emergency.

#### Public Participation and Discussion of Comments

All interested persons have been given an opportunity to participate in the making of this amendment, and due consideration has been given to all matters presented.

No commentators disputed the need for this AD. One commentator stated passengers are already reluctant to pull on the oxygen mask tube to release the oxygen supply pin/valve assembly. This hesitation to pull on the mask could become a serious trend if passengers feared they might disconnect the assembly entirely.

Two operators requested that the AD compliance time be extended to 2,000 and 2,400 hours (approximately 9 months and one year) respectively to allow the orifice fitting modifications to fit their maintenance schedules.

The Boeing service bulletins referenced in this AD were issued on July 6, 1979. The Notice was issued on July 30, 1979. Parts were available for all the affected aircraft by the end of August, 1979. The time consumed in the rulemaking process plus the six months compliance time provided in the rule itself will provide the operators approximately 9 to 10 months to replace the orifice fittings and should accommodate their needs.

In addition, the AD does allow the operators a 2,400 hour compliance time if they restrict their operations to 25,000 feet altitude or below.

The FAA has therefore determined not to extend the compliance time as specified in the NPRM. Furthermore, a statistical judgment based on the probable exposure of passengers to depressurization requiring the use of oxygen was used in supporting this decision.

One commentator stated the flow test required by the AD would only verify that the orifice fittings do have an opening. That operator suggested a visual inspection prior to installation. Another commentator suggested that the sampling flow check be deleted entirely because the new orifice fittings to be installed are 100 percent critically flow checked by the vendor. That same commentator stated that successful 100 percent flow checks had already been done at Boeing. These two checks provide justification for deletion of further flow checks, it is argued.

It is the FAA's position that a functional flow test of the oxygen system should be conducted after any extensive modification or maintenance to that system and that a visual inspection is not a sufficient system check. Boeing Service Letter 707/727/737-SL-35-1, dated February 5, 1976, recommended flow tests be conducted every 7,000 hours on 10 percent of the passenger service units. The test scheduling required for this AD will be minimized for those operators that have incorporated this recommendation into their maintenance program.

#### Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, Section 39.13 of the Federal Aviation Regulations (14 CFR 39.13) is amended by adding the following new airworthiness directive: Boeing: Applies to all Model 727 and 737 series airplanes with the "carry-all" interior. Compliance required as indicated. Accomplish the following:

Within the next 1,200 hours time-in-service or six (6) months after the effective date of this AD, whichever comes first, unless already accomplished, replace the straight orifice fittings on the Boeing part number 10-60513-18, -19, and -20 latch valves and manifold assemblies of the PSU with the redesigned barbed orifice fitting and O-ring in accordance with Boeing Service Bulletin 727-35-A18 dated July 6, 1979, or Boeing Service Bulletin 737-35-A1014 dated July 6, 1979, as applicable, and Puritan-Bennett Service Letter 210780-35-1 dated May 25, 1979, or later FAA-approved revisions. These passenger oxygen service unit manifolds are to be renumbered and functionally tested in accordance with the applicable service bulletin after the new barbed orifice fittings and O-rings have been installed. The compliance time prescribed above may be extended to 2,400 hours time-in-service or one (1) year after the effective date of this AD, whichever comes first, by limiting the operational altitude of the airplane to 25,000 feet.

The manufacturer's specifications and procedures identified and described in this directive are incorporated herein and made a part hereof pursuant to 5 U.S.C. 552(a)(1). All persons affected by this directive who have not already received these documents from the manufacturer may obtain copies upon request to Boeing Commercial Airplane Company, P.O. Box 3707, Seattle, Washington, 98124. These documents may also be examined at FAA, Northwest Region, 9010 East Marginal Way South, Seattle, Washington 98108.

(Secs. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c); and 14 CFR 11.89)

Note.—The FAA has determined that this document involves a regulation which is not considered to be significant under the provisions of Executive Order 12044 and as implemented by Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979).

Issued in Seattle, Washington, on October 26, 1979.

Note.—The incorporation by reference provisions in the document were approved by the Director of the Federal Register on June 19, 1987.

C. B. Walk, Jr.,

Director, Northwest Region.

[FR Doc. 79-34159 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

## DEPARTMENT OF THE TREASURY

### Internal Revenue Service

#### 26 CFR Part 5

[T.D. 7653]

#### Temporary Income Tax Regulations; Elections To Account for the Redemption of Discount Coupons

**AGENCY:** Internal Revenue Service, Treasury.

**ACTION:** Temporary regulations.

**SUMMARY:** This document provides temporary regulations in order to provide guidance to the public as to the manner in which two elections relating to methods of accounting for the redemption costs of discount coupons are made. Changes to the applicable law are made by the Revenue Act of 1978. These regulations affect all taxpayers who issue discount coupons in a trade or business.

**EFFECTIVE DATE:** The regulations are effective for taxable years ending after December 31, 1978.

**FOR FURTHER INFORMATION CONTACT:** John Schmalz of the Legislation and Regulations Division, Office of the Chief Counsel, Internal Revenue Service, 1111 Constitution Avenue, NW, Washington, DC 20224, Attention: CC:LR:T, 202-566-3671, not a toll-free number

#### SUPPLEMENTARY INFORMATION:

##### Background

This document contains an amendment to the Temporary Income Tax Regulations (26 CFR Part 5) under section 466 of the Internal Revenue Code of 1954. This amendment provides rules relating to the manner in which taxpayers make an election under section 466 to use a special method of accounting for the redemption cost of qualified discount coupons issued in connection with a trade or business. The

amendment also provides rules relating to the manner in which a taxpayer makes a special election under section 373(c)(2) of the Revenue Act of 1978 with respect to a method of accounting used by the taxpayer in prior taxable years to account for the redemption costs of discount coupons.

#### Manner of and Time for Making Election

Generally, in order to use the method of accounting provided in section 466 to account for the redemption costs of qualified discount coupons issued in connection with a trade or business, the taxpayer must make an election with respect to the trade or business. The election is made by filing a statement of election on a Form 3115 containing certain required information. The statement must be filed with the taxpayer's income tax return for the taxpayer's first taxable year for which the election is made, no later than the date prescribed (including extensions) for filing such return. The election does not require the prior consent of the Internal Revenue Service. However, the prior consent of the Internal Revenue Service is required in order to revoke the election with respect to any taxable year.

A taxpayer may make an election under section 373(c)(2) of the Revenue Act of 1978 (92 Stat. 2865) with respect to a method of accounting only if the requirements of section 373(c)(2)(A) (i) and (ii) of the Act are satisfied. The election is made by filing a statement of election on a Form 3115 containing certain required information. The statement must be filed with the taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978, no later than the date prescribed (including extensions) for filing such return. The election under section 373(c)(2) of the Act may be made without the prior consent of the Internal Revenue Service.

#### Need for Temporary regulations

There is a need for expeditious adoption of the provisions contained in this document because issuers of discount coupons must be provided with immediate guidance in order to make timely elections under section 466 or section 373(c) of the Act. For this reason, Jerome Kurtz, Commissioner of Internal Revenue, has determined that it would be impractical to comply with the provisions of paragraphs 8 through 13 of the final Treasury Department directive published in the Federal Register for November 8, 1978 (43 FR 52120), which implements Executive Order 12044, relating to the improvement of Treasury regulatory practices.

#### Drafting Information

The principal author of this regulation was John Schmalz of the Legislation and Regulations Division of the Office of Chief Counsel, Internal Revenue Service. However, personnel from other offices of the Internal Revenue Service and Treasury Department participated in developing the regulation, both on matters of substance and style.

#### Adoption of amendments to the regulations

Accordingly, 26 CFR Part 5 is amended as follows:

Paragraph 1. The following sections are added at the beginning of 26 CFR Part 5:

#### § 5.466-1 Manner of and time for making election under section 466.

(a) *In general.* Section 466 provides a special method of accounting for accrual basis taxpayers who issue qualified discount coupons (as defined in section 466(b)). In order to use the special method of accounting under section 466, a taxpayer must make an election with respect to the trade or business in connection with which the qualified discount coupons are issued. If a taxpayer issues qualified discount coupons in connection with more than one trade or business, the taxpayer may use the special method of accounting under section 466 only with respect to the qualified discount coupons issued in connection with a trade or business for which an election is made. The election must be made in the manner prescribed in this section. The election does not require the prior consent of the Internal Revenue Service. An election under section 466 is effective for the taxable year for which it is made and for all subsequent taxable years, unless the taxpayer secures the prior consent of the Internal Revenue Service to revoke such election.

(b) *Manner of and time for making election.*—(1) *General rule.* Except as provided in paragraph (b)(2) of this section, an election is made under section 466 and this section by filing a statement of election containing the information described in paragraph (c) of this section with the taxpayer's income tax return for the taxpayer's first taxable year for which the election is made. The election must be made not later than the time prescribed by law (including extensions thereof) for filing the income tax return for the first taxable year for which the election is made. Thus, the election may not be made for a taxable year by filing an amended income tax return after the time prescribed (including extensions) for filing the original return for such year.



(2) *Transitional rule.* If the last day of the time prescribed by law (including extensions thereof) for filing a taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978, falls before December 3, 1979, and the taxpayer does not make an election under section 466 with respect to such taxable year in the manner prescribed by paragraph (b)(1) of this section, an election is made under section 466 and this section with respect to such taxable year if—

(i) Within the time prescribed by law (including extensions thereof) for filing the taxpayer's income tax return for such taxable year, the taxpayer has made a reasonable effort to notify the Commissioner of the taxpayer's intent to make an election under section 466 with respect to such taxable year, and

(ii) Before January 2, 1980, the taxpayer files a statement of election containing the information described in paragraph (c) of this section to be associated with the taxpayer's income tax return for such taxable year.

For purposes of paragraph (b)(2)(i) of this section, a reasonable effort to notify the Commissioner of an intent to make an election under section 466 with respect to a taxable year includes the timely filing of an income tax return for such taxable year if the taxable income reported on the return reflects a deduction for the redemption costs of qualified discount coupons as determined under section 466(a).

(c) *Required information.* The statement of election required by paragraph (b) of this section must indicate that the taxpayer (identified by name, address, and taxpayer identification number) is making an election under section 466 and must set forth the following information:

(1) A description of each trade or business for which the election is made;

(2) The first taxable year for which the election is made;

(3) The redemption period (as defined in section 466 (c) (2)) for each trade or business for which the election is made;

(4) If the taxpayer is required to establish a suspense account under section 466 (e) for a trade or business for which the election is made, the initial opening balance of such account (as defined in section 466 (e) (2)) for each such trade or business; and

(5) In the case of an election under section 466 that results in a net increase in taxable income under section 481 (a) (2), the amount of such net increase.

The statement of election should be made on a Form 311 which need contain no information other than that required by this paragraph or paragraph (c) of

§ 5.466-2 of the Temporary Income Tax Regulations.

§ 5.466-2 Manner of and time for making election under section 373 (c) of the Revenue Act of 1978.

(a) *In general.* Section 373 (c) (2) of the Revenue Act of 1978 (92 Stat. 7865) provides an election for taxpayers who satisfy the requirements of section 373 (c) (2) (A) (i) and (ii) of the Act. The election is made with respect to a method of accounting for the redemption costs of discount coupons used by the electing taxpayer in a continuous period of one or more taxable years ending before January 1, 1979. The election must be made in the manner prescribed by this section. The election does not require the prior consent of the Internal Revenue Service.

(b) *Manner of and time for making election—(1) General rule.* Except as provided in paragraph (b) (2) of this section, the election under section 373 (c) of the Revenue Act of 1978 is made by filing a statement of election containing the information described in paragraph (c) of this section with the taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978. The election must be made not later than the time prescribed by law (including extensions thereof) for filing the income tax return for the taxpayer's first taxable year ending after December 31, 1978. Thus, the election may not be made with an amended income tax return for such year filed after the time prescribed (including extensions) for filing the original return.

(2) *Transitional rule.* If the last day of the time prescribed by law (including extensions thereof) for filing a taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978, falls before December 3, 1979, and the taxpayer does not make an election in the manner prescribed by paragraph (b) (1) of this section, an election is made under section 373 (c) of the Act and this section with respect to a continuous period if—

(i) Within the time prescribed by law (including extensions thereof) for filing the taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978, the taxpayer has made a reasonable effort to notify the Commissioner of the taxpayer's intent to make an election under section 373 (c) of the Act with respect to the continuous period, and

(ii) Before January 2, 1980, the taxpayer files a statement of election containing the information described in paragraph (c) of this section to be

associated with the taxpayer's income tax return for the taxpayer's first taxable year ending after December 31, 1978.

(c) *Required information.* The statement of election required by paragraph (b) of this section must indicate that the taxpayer (identified by name, address, and taxpayer identification number) is making an election under section 373 (c) of the Revenue Act of 1978 and must set forth the taxable years in the continuous period for which the election is made. The statement of election should be made on the same Form 3115 on which the taxpayer has made a statement of election under section 466. The Form 3115 need contain no information other than that required by this paragraph or paragraph (c) of § 5.466-1 of the Temporary Income Tax Regulations.

Because the amendment contained in the Treasury decision is concerned with procedural matters and because there is a need for the expeditious adoption of the amendment, it is found unnecessary to issue it with a notice and public procedure thereon under section 553 (b) of Title 5 of the United States Code.

This Treasury decision is issued under the authority contained in sections 466 and 7805 of the Internal Revenue Code of 1954 (92 Stat. 2863 and 68A Stat. 917; 26 U.S.C. 466 and 26 U.S.C. 7805) and section 373 (c) of the Revenue Act of 1978 (92 Stat. 2865).

Jerome Kurtz,  
Commissioner of Internal Revenue.

Approved: October 23, 1979.

Donald C. Lubick,  
Assistant Secretary of the Treasury.

[FR Doc. 79-34158 Filed 11-2-79; 8:45 a.m.]  
BILLING CODE 4830-01-M

## DEPARTMENT OF TRANSPORTATION

### Coast Guard

#### 33 CFR Part 183

[CGD 78-090]

### Electrical Systems on Recreational Boats

AGENCY: Coast Guard, DOT.

ACTION: Final rule.

**SUMMARY:** This document amends the requirements for placement of overcurrent protection in the electrical system on a boat. The present requirements do not take into consideration manufacturing limitations on locating overcurrent protection devices directly at the source of power for a conductor. Because it would often be impractical to physically locate a circuit breaker right at the source of

power, the Coast Guard has amended the regulation by allowing a jumper conductor up to 7 inches long to be used, or where it is physically impractical to locate the overcurrent protection within 7 inches of the source of power, by allowing the overcurrent protection to be up to 40 inches from the source of power, provided the conductor is additionally protected by being inside a sheath or in an enclosed box. The amended regulations will provide a more practical application of minimum safety standards to recreational boating without adversely affecting boating safety.

**EFFECTIVE DATE:** This amendment is effective November 5, 1979.

**FOR FURTHER INFORMATION CONTACT:** Mr. Lars E. Granholm, Office of Boating Safety, G-BBT/TP42, U.S. Coast Guard, Department of Transportation, 2100 Second Street SW., Washington, D.C. 20590 (202/426-4027).

**SUPPLEMENTARY INFORMATION:** The Coast Guard published the proposed amendment to § 183.455 in the Federal Register on December 28, 1978 (43 FR 60850). A correction was published on January 25, 1979 (44 FR 5158) and the comment period was extended until March 12, 1979. Interested persons were invited to participate in this proposed rulemaking by submitting relevant comments. The comments received were carefully considered and one minor change has been made to the regulations as a result of the comments. Since this amendment relieves certain restrictions under the present regulations, it may be made effective is less than 30 days (5 U.S.C. 553(d)(1)).

#### Drafting Information

The principal persons involved in drafting this proposal are: Mr. Lars E. Granholm, Project Manager, Office of Boating Safety and Ms. Mary Ann McCabe, Project Attorney, Office of the Chief Counsel.

#### Discussion of Comments

The only comments received were two identical requests that the wording in § 183.455(b)(3) be clarified to indicate whether or not the required protection must cover the entire length of the conductor. The intent is that the entire conductor be protected. To clarify this, the wording is changed to specify that the protection must be provided over the entire length of the conductor. Minor changes in arrangement have also been made to simplify and clarify the rule.

This amendment has been reviewed and is not considered significant under the Department of Transportation's "Regulatory Policies and Procedures"

(44 FR 11034, February 26, 1979). A copy of the final evaluation may be obtained from: Commandant (G-CMC/TP24), (CGD78-090), U.S. Coast Guard, Washington, D.C. 20590.

In consideration of the foregoing, § 183.455(b) (1) and (2) of Title 33 of the Code of Federal Regulations is amended as follows:

#### § 183.455 Overcurrent protection: General.

(b) Manually reset, trip-free circuit breaker or fuse must be placed at the source of power for each circuit or conductor except that:

(1) If it is physically impractical to place the circuit breaker or fuse at the source of power, it may be placed within seven inches of the source of power for each circuit or conductor measured along the conductor.

(2) If it is physically impractical to place the circuit breaker or fuse at or within seven inches of the source of power, it may be placed within 40 inches of the source of power for each circuit or conductor, measured along the conductor, if the conductor is contained throughout its entire distance between the source of power and the required circuit breaker or fuse in a sheath or enclosure such as a junction box, control box, or enclosed panel.

(46 U.S.C. 1454; 49 CFR 1.46(n)(1))

Dated: October 30, 1979.

J. B. Hayes,  
Admiral, U.S. Coast Guard Commandant.

[FR Doc. 79-34151 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-14-M

#### POSTAL SERVICE

##### 39 CFR Part 775

#### National Environmental Policy Act (NEPA); Implementing Procedures

**AGENCY:** Postal Service.

**ACTION:** Final rule.

**SUMMARY:** The Postal Service adopts the procedures below in voluntary compliance with the Council on Environmental Quality's (CEQ's) new regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA). The new regulations direct all agencies of the Federal Government to adopt supplemental procedures. The new regulations, adopted November 29, 1978, are broader in coverage and more definitive than their predecessor guidelines, adopted in 1971, under which the Service's former environmental

statement procedures were issued. The new procedures, in consonance with CEQ's new regulations, implement all pertinent NEPA procedural provisions, and relate more specifically to the Service's actual operations than did the former procedures. In addition, the new procedures list typical classes of action normally requiring environmental assessment, and typical classes not requiring it; direct that environmental analyses be timely, so that plans and decisions reflect environmental values; require the use of environmental analyses in the location of suitable sites for postal facility construction projects; require the completion of detailed statements, where applicable, before financial commitments are made which favor any alternative; and require that environmental assessments reflect views and information obtained from government agencies and, where likely to be environmentally significant, the public.

**EFFECTIVE DATE:** November 5, 1979.

**FOR FURTHER INFORMATION CONTACT:** Frank Rowan, (202) 245-4348.

**SUPPLEMENTARY INFORMATION:** On June 25, 1979, the Postal Service published proposed procedures in the Federal Register (44 FR 36991) for implementing NEPA and the CEQ's NEPA Regulations (43 FR 55978). Interested persons were given until July 25, 1979, to submit comments. No comments were received within that period.

Subsequently, the Postal Service identified several additional types of actions that were perceived to have no significant impact on the human environment. The Postal Service proposed to add these additional types of actions to the list of "categorical exclusions" contained in proposed § 775.4(b) and published a notice to that effect in the Federal Register of September 7, 1979, 44 FR 52262. The Postal Service received comments from the CEQ, the Department of Community Development of Seattle, Washington, and the Advisory Council on Historic Preservation.

The Advisory Council on Historic Preservation (ACHP) requested that a section be added to the procedures detailing the manner in which Postal Service historic preservation responsibilities will be coordinated with Postal Service NEPA responsibilities. In the interest of providing needed guidance to Postal Service employees and the public at the earliest practicable date, the Postal Service decided to proceed with publishing the final NEPA procedures without delay. At the same time, the Postal Service will meet with the ACHP in a consultation process and,

if that consultation warrants, will supplement the procedures by amendment.

The Department of Community Development of Seattle recommended deletion of the proposed categorical exclusions for "new construction, including lease-construction, of 10,000, or less, net square feet" and "purchase or lease of an existing building containing 20,000, or less, net square feet of space where a new or substantially enlarged occupancy is not involved." The objection to the second exclusion is not well taken as the exclusion refers only to acquisitions where no new or substantially enlarged occupancy is involved; it does not encompass acquisitions involving environmentally active changes. With respect to the "new construction exclusion," Postal Service officials cannot recall any new postal facility of 10,000, or less, net square feet where there was unresolved environmental controversy or significant environmental impact. Accordingly, and in view of safeguards we have written into §§ 775.4(b) and 775.6(a)(1), which require the responsible official to be alert to unusual conditions that would require an environmental assessment or an environmental impact statement, this "categorical exclusion" will be retained in the rule. The Postal Service will revise the procedures if future experience warrants it.

The final rule incorporates the CEQ's request that the procedures identify a person within the Postal Service whom interested persons may contact for NEPA information (see § 775.3(a)). In addition, it includes those additional "categorical exclusions" that were unobjectionable to the CEQ. It does not include a proposed categorical exclusion, now determined unnecessary, which was for the procurement or disposal of property other than real property and motor vehicles.

The procedures we are adopting replace the Postal Service's environmental statement procedures adopted on July 6, 1972 (37 FR 13322, 39 CFR Part 775). In addition, the notice of proposed rulemaking issued on August 24, 1976 (41 FR 35725), proposing reissuance of the 1972 procedures with revisions, is withdrawn.

For the above reasons, 39 CFR 775 is amended to read as follows:

W. Allen Sanders,  
Associate General Counsel for General Law  
and Administration.

Part 775 is revised to read as set forth below:

## PART 775—ENVIRONMENTAL PROCEDURES

Sec.

- 775.1 Purpose.
- 775.2 Policy.
- 775.3 Responsibilities.
- 775.4 Typical classes of action.
- 775.5 Environmental evaluation guidelines.
- 775.6 Environmental evaluation process.
- 775.7 Environmental assessments.
- 775.8 Environmental impact statements.
- 775.9 Time frames for environmental impact statement actions.
- 775.10 Public notice and information.
- 775.11 Hearings.

Authority: 39 U.S.C. 401.

### § 775.1 Purpose.

These procedures implement the National Environmental Policy Act (NEPA) Regulations (43 FR 55978) issued by the Council on Environmental Quality (CEQ). These procedures are adopted pursuant to the Postal Reorganization Act rather than the NEPA insofar as the NEPA and its Regulations do not apply to the Postal Service under 39 U.S.C. 410(a).

### § 775.2 Policy.

It is the policy of the Postal Service to:

- (a) Interpret and administer applicable policies, regulations, and public laws of the United States in accordance with the policies set forth in the National Environmental Policy Act, as amended, and the NEPA Regulations.
- (b) Make the NEPA process useful to Postal Service decision makers and the public.
- (c) Emphasize environmental issues and alternatives in the consideration of proposed actions.
- (d) Encourage and facilitate public involvement in decisions which affect the quality of the human environment.
- (e) Use the NEPA process to identify and assess reasonable alternatives to proposed actions in order to avoid or minimize adverse effects on the environment.
- (f) Use all practicable means to protect, restore, and enhance the quality of the human environment.
- (g) Reduce paperwork.
- (h) Reduce delay.

### § 775.3 Responsibilities.

(a) The Assistant Postmaster General, Real Estate and Buildings Department, is responsible for overall review of NEPA compliance. Requests for information or status reports on environmental impact statements and other elements of the NEPA process should be addressed to:

Assistant Postmaster General, Real Estate & Buildings Department, United States Postal Service, 475 L'Enfant Plaza, West, S.W., Washington, DC 20260.

(b) Heads of affected Headquarters Departments and Regional Postmasters General must designate "Environmental Coordinators" to be specifically responsible for compliance with these procedures.

### § 775.4 Typical classes of action.

(a) *Normally Assessed Kinds Of Action.* These procedures apply to the following typical classes of actions:

- (1) Those which normally require environmental impact statements: None.
- (2) Those which do not normally require environmental impact statements, but do normally require environmental assessment except as excluded by paragraph (b) of this section:

(i) Postal facility actions:

(A) New construction, including lease-construction.

(B) The purchase or lease of an existing building if a new or substantially enlarged occupancy is involved.

(C) The expansion or improvement of an existing facility.

(ii) Real property disposals.

(iii) Postal facility function changes.

(iv) Initiation of legislative proposals.

(b) *Categorical Exclusions.* The classes of action in paragraphs (b) (1) through (9) of this section normally do not require either an environmental assessment or an environmental impact statement. However, the responsible official must be alert to unusual conditions that would require an environmental assessment or an environmental impact statement (see 775.6(a)(1)).

(1) New construction, including lease-construction, of 10,000, or less, net square feet.

(2) Expansion or improvement of an existing facility where the gross square footage is not increased by more than twenty percent, and the site size is not increased substantially.

(3) Purchase or lease of an existing building containing 20,000, or less, net square feet of space where a new or substantially enlarged occupancy is not involved.

(4) Repair to or replacement in kind of building equipment or components (e.g., electrical distribution or HVAC systems, doors, windows, roofs).

(5) Disposition of real property as follows:

(i) One acre, or less, of unimproved land in an urban area.

(ii) Five acres, or less, of unimproved land in a rural area.

(6) Routine actions normally conducted to protect and maintain properties.

(7) Postal facility function changes not involving construction, the relocation of a substantial number of employees, or a substantial increase in the number of motor vehicles at a facility.

(8) Procurement or disposal of motor vehicles not involving a substantial increase in the concentration of vehicles in a geographic impact area.

(9) Postal rate or mail classification actions.

#### § 775.5 Environmental evaluation guidelines.

(a) *Approach.* When dealing with proposals which may have an impact on the human environment, environmental coordinators, planners, decision makers, and other officials responsible for actions, will, as appropriate:

(1) Use a systematic approach that integrates natural and social sciences and environmental design in planning and making decisions.

(2) Identify environmental effects and values in detail, and appraise them in conjunction with economic and technical analyses.

(3) Consider environmental documents at all decision points at which other planning documents are considered. (Plans and decisions are to reflect environmental values. Proposed actions should be assessed as soon as their effects can be meaningfully evaluated, to provide the bases for early decision on whether detailed environmental impact statements must be prepared.)

(4) Study, develop, describe, and evaluate at all decision points, reasonable alternatives to recommended actions which may have a significant effect on the environment.

(b) *Proposal Requirements.* When an environmental impact statement has been prepared, it must accompany the proposal through and be used in the decision-making process. Any other proposal must refer to applicable environmental documents (e.g., determination of categorical exclusion; finding of no significant impact; notice of intent to prepare an impact statement), and relevant comments and responses.

(c) *Lead Agency Arrangements.* If the Postal Service and another Federal agency become involved in a lead agency arrangement for the preparation of an environmental impact statement, the Service will cooperate fully.

#### § 775.6 Environmental evaluation process.

(a) *All Actions:*

(1) *Assessment of Actions.* An environmental assessment must be made of each proposed action, except

that an assessment need not be made if a written determination is made that:

(i) The action is one of a class listed in § 775.4(b), Categorical Exclusions, and

(ii) The action is not affected by extraordinary circumstances which may cause it to have a significant environmental effect.

(2) *Findings of No Significant Impact.*

If an environmental assessment indicates that there is no significant impact of a proposed action on the environment, an environmental impact statement is not required. A "finding of no significant impact" is prepared and published in accordance with § 775.10. When the proposed action is approved, it may be accomplished without further environmental consideration. A "finding of no significant impact" document briefly presents the reasons why an action will not have a significant effect on the human environment and states that an environmental impact statement will not be prepared. It must refer to the environmental assessment and any other environmentally pertinent documents related to it. The assessment may be included in the finding if it is short, in which case the discussion in the assessment need not be repeated in the finding.

(3) *Impact Statement Preparation Decision and Notices.* If an environmental assessment indicates that a proposed major action would have a significant impact on the environment, a notice of intent to prepare an impact statement is published (see § 775.10) and an environmental impact statement is prepared.

(4) *Role of Impact Statement in Decision Making.* An environmental impact statement is used, with other analyses and materials, to decide which alternative should be pursued, or whether a proposed action should be abandoned or other courses of action pursued. See § 775.9 for restrictions on the timing of this decision.

(5) *Record of Decision.* For actions requiring environmental impact statements, a concise public record of decision is prepared when a decision, or a proposal for legislation, is made. The record, which may be integrated into any other record, including that required by OMB Circular A-95 (Revised), must:

(i) State what the decision was.

(ii) Identify all alternatives considered in reaching a decision, specifying alternatives considered to be environmentally preferable; identify and discuss all significant factors, including any essential considerations of national policy, which were weighed in making the decision and state how those considerations entered into the decision.

(iii) State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been or will be adopted, and if not, why not.

(6) *Actions Prohibited Prior to Issuance of Record of Decision.* Until a record of decision is issued, no action may be taken on a proposal on which an environmental impact statement is made if the action would:

(i) Have an adverse environmental impact, or

(ii) Limit the choice of reasonable alternatives.

(7) *Mitigation Measures.* Practicable mitigation measures identified in an environmental assessment must be implemented. Mitigation measures described in an environmental impact statement and accepted in a decision must be implemented. Upon request, the Postal Service informs federal, state, and local agencies and the public of the progress in carrying out adopted mitigation measures.

(b) *Additional Requirements for Facility Actions:*

(1) The environmental assessment of any action which involves the choice of a site for a facility must be started early in the planning of the action, and be used, together with other information, in the location of suitable sites. Selected competing sites may be controlled as necessary to preserve alternatives prior to project approval.

(2) When an environmental assessment indicates that an environmental impact statement may be needed for a proposed facility action, a decision analysis report reflecting the results of the assessment is presented to the Capital Investment Committee, and to the Board of Governors if the Board considers the proposal (see 39 CFR 3.4(f)), so that they may decide if an impact statement is to be prepared.

(3) If the Committee or the Board is requested to authorize the preparation of an environmental impact statement, and an analysis indicates that it would be more cost-effective to proceed immediately with continued control of sites, environmental impact statement preparation, and project designs, the request will include authorization of funds to permit:

(i) The preparation of an impact statement encompassing all reasonable site alternatives,

(ii) The continued control of specified competing sites, chosen to preserve environmental options as well as any others, and

(iii) The development of limited designs of facilities for each competing site.

(4) A completed environmental impact statement will be presented to the Capital Investment Committee, and to the Board of Governors if the Board considers the proposal, for use in deciding whether a proposed project should proceed, be restudied, or be abandoned. If the decision is to proceed with a proposed project, the Committee, or the Board if it considers the proposal, decides which alternative site is to be used for project development, and authorizes the project.

#### § 775.7 Environmental assessments.

(a) An environmental assessment must contain:

- (1) A summary of major considerations and conclusions,
- (2) A description of the proposed action,
- (3) For each reasonable alternative, a description of the affected environment, the environmental consequences, the mitigation measures, if any, and a comparison to all alternatives considered.

(b) Those preparing an environmental assessment must solicit information and views from Federal, State, and local agencies and, where there is a substantial likelihood of significant effects on the environment, the public. All responsible views and information must be considered.

#### § 775.8 Environmental impact statements.

(a) *Determining scope.* Before an environmental impact statement is prepared, the following procedures must be followed to determine what issues are to be addressed and in what depth:

(1) Affected Federal, State, and local agencies and other interested persons are invited to participate by furnishing written views and information, or at a hearing if appropriate. Notice is given in accordance with § 775.10.

(2) The significance of issues to be analyzed in depth in the environmental impact statement is determined through consideration of:

(i) Actions which are closely related, or similar, or have cumulative significant impacts.

(ii) Alternatives, which must include the "no action" alternative, other reasonable courses of action, and mitigation measures.

(iii) Impacts, which may be direct, indirect, or cumulative.

(3) Issues which are not significant are identified and eliminated.

(4) The determinations made must be revised if substantial changes are made later in the proposed action, or if significant new circumstances or information arise which bear on the proposal or its impacts.

(b) *Preparation*—(1) Except for proposals for legislation, environmental impact statements are prepared in two stages:

(i) Draft environmental impact statement, prepared in accordance with the scope decided upon under paragraph (a) of this section.

(ii) Final environmental impact statement, responding to comments on the draft statement and discussing and responding to any responsible opposing view which was not adequately discussed in the draft statement.

(2) Environmental impact statements must:

(i) Be analytic rather than encyclopedic.

(ii) Contain discussions of impacts in proportion to their significance. Insignificant impacts eliminated during the process under § 775.8(a) to determine the scope of issues must be discussed only to the extent necessary to state why they will not be significant.

(iii) Be concise, and not longer than is necessary to comply with NEPA. They must not contain repeated statements of the same basic points.

(iv) Contain discussions of alternatives considered and of how alternatives chosen will meet the requirements of NEPA and other environmental laws and policies.

(v) Encompass the range of alternatives to be considered by the decision makers.

(vi) Serve to assess the environmental impact of proposed actions, rather than to justify decisions already made.

(3) The text of final environmental impact statements normally should be less than 150 pages. Statements on proposals of unusual scope or complexity normally should be less than 300 pages.

(4) Staged or "tiered" environmental impact statements must not contain repetitive discussions of the same issues. Each document must state where each earlier document is available.

(5) Material may be incorporated into an environmental impact statement by reference only when the material is reasonably available for inspection by potentially interested persons within the time allowed for comment.

(6) If information relevant to adverse impacts is essential to a reasoned choice among alternatives, but the cost of obtaining it is exorbitant or the means to obtain it are beyond the state of the art, the need for the action must be weighed against the risk and severity of possible adverse impacts if the action were to proceed. There must be included in the statement a "worst-case" analysis and an indication of the probability or improbability of its occurrence.

(7) If a cost-benefit analysis relevant to the choice among environmentally different alternatives was prepared for the proposed action, it must be incorporated by reference or appended to the statement to aid in evaluating the environmental consequences. The relationship between the cost-benefit analysis and any analysis of unquantified environmental impacts, values, and amenities must be discussed.

(8) Methods used must be identified, and footnote references must be made to scientific and other sources relied on for conclusions. Analytical techniques may be incorporated in appendices.

(9) Permits, licenses, and other authorizations needed to implement a proposal must be listed in the draft environmental impact statement and the prospects for obtaining them must be assessed. Where there is uncertainty as to the need for an authorization it must be indicated.

(10) An environmental impact statement must contain a discussion of any inconsistency between the proposed action and any State or local law, ordinance, or approved plan; and must contain a description of the manner and extent to which the proposed action will be reconciled with the law, ordinance, or approved plan.

(11) Where State laws or local ordinances impose environmental impact statement requirements which are not in conflict with those in NEPA, an environmental impact statement made by the Postal Service should satisfy pertinent State and local requirements to the extent practicable.

(c) *Format.* The standard format for environmental statements is:

(1) *Cover Sheet.* The cover sheet, not to exceed one page, must include:

(i) A list of the responsible agencies including the lead agency and any cooperating agencies.

(ii) The title of the proposed action that is the subject of the statement (and if appropriate, the titles of related cooperating agency actions), together with any city, state, and county where the action is to take place.

(iii) The name, address, and telephone number of a person at the agency who can supply further information.

(iv) A designation of the document as a draft or final statement or a draft or final supplement.

(v) A one-paragraph abstract of the statement.

(vi) The date by which comments must be received.

(2) *Summary.* The summary must stress the major conclusions, areas of controversy (including issues raised by agencies and the public), and the issues

to be resolved (including the choice among alternatives).

(3) *Table of Contents.*

(4) *Purpose of and Need for Action.*

(5) *Alternatives and Mitigation.* This portion of the environmental impact statement is vitally important. Based on the analysis in the Affected Environment and Environmental Consequences section (see § 775.8(c)(6)), the environmental impacts and the alternatives are presented in comparative form, thus sharply defining the issues and providing a clear basis for choosing alternatives.

Those preparing the statement must:

(i) Explore and evaluate all reasonable alternatives, including the "no action" alternative, and briefly discuss the reasons for eliminating any alternatives.

(ii) Devote substantial treatment to each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits.

(iii) Identify the preferred alternative or alternatives in the draft and final statements.

(iv) Describe appropriate mitigation measures not considered to be an integral part of the proposed action or alternatives. See § 775.8(a)(7).

(6) *Affected Environment and Environmental Consequences.* For each reasonable alternative, each affected element of the environment must be described, followed immediately by an analysis of the impacts (environmental consequences). The analysis must include, among others, the following:

(i) Any adverse environmental effects which cannot be avoided should the action be implemented.

(ii) The relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity,

(iii) Any irreversible or irretrievable commitments of resources should the action be implemented, and

(iv) Energy requirements and conservation; and natural, or depletable, resource requirements and conservation.

(7) *List of Mitigation Measures.*

(8) *List of Preparers.* List the names, together with the qualifications (expertise, professional disciplines), of persons who were primarily responsible for preparing the environmental impact statement or significant background papers.

(9) *List of Agencies, Organizations and Persons to Whom Copies of the Statement Are Sent.*

(10) *Index.*

(11) *Appendices.* Include comments on draft statement in final statement.

(d) *Distribution.* (1) Any completed draft environmental impact statement which is made the subject of a public hearing, must be made available to the public as provided in Section 775.10, below, at least 15 days in advance of the hearing.

(2) Draft and final environmental impact statements must be filed with the Environmental Protection Agency. Five copies are filed with EPA's headquarters addressed to the Office of Federal Activities (A-104), Environmental Protection Agency, 401 M Street SW, Washington, DC 20460; five copies are also filed with the responsible EPA region. Statements may not be filed with the EPA earlier than they are transmitted to commenting agencies and made available to the public.

(3) Copies of draft and final environmental impact statements must be furnished to:

(i) Any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.

(ii) Any appropriate Federal, state, or local agency authorized to develop and enforce environmental standards.

(iii) A-95 Clearinghouses, the State Historic Preservation Officer, and, when National Register or eligible properties may be affected, the Advisory Council on Historic Preservation.

(iv) Any person, organization or agency requesting them.

(4) Copies of final environmental impact statements must be furnished to any person who, or organization or agency which, submitted substantive comments on the draft.

(e) *Responses to comments.* (1) A final statement responds to comments on a draft statement in one or more of the following ways:

(i) Modification of alternatives, including the proposed action.

(ii) Development and evaluation of alternatives not previously given serious consideration.

(iii) Supplementation, improvement, or modification of analyses.

(iv) Correction of facts.

(v) Explanation of why a comment does not warrant a direct response, citing supporting sources, authorities, or reasons. Relevant circumstances which may trigger reappraisal or further response must be indicated.

(2) Substantive comments received on a draft statement must be attached to the final statement.

(3) If all of the changes are minor and are confined to responses described in paragraph (e)(1), (iv), and (v) above, errata sheets may be written, and only the comments and errata sheets need be recirculated. In such a case, the draft

statement with the comments, errata sheets, and a new cover, must be filed as the final statement.

(f) *Supplements.*—(1) A supplement to a draft or final environmental impact statement must be issued if:

(i) Substantial changes are made in the proposed action that are relevant to environmental concerns; or

(ii) Significant new circumstances or information bearing on environmental impacts of the proposed action arise or are discovered.

(2) The decision on a proposed action involving an environmental impact statement, must be delayed until any necessary supplement has been circulated and has gone through the commenting period. A supplement is prepared, circulated, and filed in the same manner (except for determining scope) as draft and final statements, unless alternative procedures are approved by CEQ.

(g) *Contracting.* A contractor employed to prepare an environmental impact statement must certify that it has no financial or other interest in the outcome of the project.

(h) *Proposals for Legislation.* Legislative environmental impact statements must be prepared and transmitted as follows:

(1) A legislative environmental impact statement is considered part of the formal transmittal of a legislative proposal to the Congress. It may be transmitted to the Congress up to 30 days after the proposal. The statement must be available in time for Congressional hearings and deliberations.

(2) Preparation and processing of a legislative statement must conform to the requirements for impact statements, except as follows:

(i) It is not necessary to determine the scope of issues.

(ii) A draft is considered to be a final statement. Both draft and final statements are needed only when:

(A) A Congressional committee with jurisdiction over the proposal has a rule requiring both.

(B) Both are specifically required by statute for proposals of the type being submitted.

(3) Comments received on a legislative statement, and the Postal Service's responses, must be forwarded to the Congress.

**§ 775.9 Time frames for environmental impact statement actions.**

(a) Each week the EPA publishes in the Federal Register a notice of the draft and final environmental impact statements received in that office during the preceding week. The minimum time



periods for decision on an action, specified in paragraphs (b) through (d) below, are calculated from the date of publication of an EPA notice of receipt of the relevant impact statement.

(b) A decision on a proposed action may not be made or recorded until the later of the following dates: 90 days after publication of the notice described in paragraph (a) of this section for a draft statement or 30 days after publication of the notice for a final statement.

(c) If a final statement is filed with the EPA within 90 days after a draft statement is filed, the 30 day period and the 90 day period may run concurrently.

(d) A minimum of 45 days must be allowed for comments on draft statements.

#### § 775.10 Public notice and information.

(a) Public notice must be given of NEPA-related hearings, intent to undertake environmental assessments and environmental impact statements, and the availability of environmental documents (that is, environmental assessments, findings of no significant impact, and environmental impact statements), as follows:

(1) Notices are mailed to those who have requested them.

(2) Notices concerning a proposal of national concern are mailed to national organizations reasonably expected to be interested.

(3) Notices of any proposed action having effects primarily of local concern, must be given as follows:

(i) Any such notice, including a copy of any pertinent environmental document, is mailed to state, areawide, and local A-95 clearinghouses listed in OMB Circular A-95 (Revised) for the geographic area involved, to the State Historic Preservation Officer, and to local public officials.

(ii) Notices are published in one or more local newspapers.

(iii) Notices are mailed to potentially interested community organizations, including small business associations.

(iv) Notices are mailed to owners and occupants of nearby and affected property.

(v) Notices are posted on and near any proposed and alternate sites for an action.

(4) A copy of every notice of intent to prepare an environmental impact statement must be furnished to the Assistant General Counsel, Legislative Division, Law Department, who will have it published in the Federal Register.

(b) All notices must give the name, address, and telephone number of a postal official who may be contacted for

information. Environmental documents are made available to the public on request. Inspection, copying, and the furnishing of copies will be in accordance with 39 Code of Federal Regulations, Part 265, "Release of Information."

#### § 775.11 Hearings.

(a) Public hearings must be held whenever there is:

(1) Substantial environmental controversy concerning a proposed action and a request for a hearing by any responsible individual or organization;

(2) A request for a hearing by an agency with jurisdiction over or special expertise concerning the proposed action; or

(3) A reasonable expectation that a hearing will produce significant information not likely to be obtained without a hearing.

(b) The distribution and notice requirements of §§ 775.8(d)(1) and 775.10 must be complied with whenever a hearing is to be held.

[FR Doc. 79-34074 Filed 11-2-79; 8:45 am]

BILLING CODE 7710-12-M

## DEPARTMENT OF THE INTERIOR

### Office of the Secretary

#### 41 CFR Parts 14-1 and 14-7

### Indian Preference In Employment, Training, and Subcontracting

#### Corrections

In FR Doc. 79-33686 appearing on page 62510 in the issue for Wednesday, October 31, 1979, the CFR Parts should have appeared as set forth above; and on page 62511, the effective date should have read "November 30, 1979" instead of "November 31, 1979."

BILLING CODE 1505-01-M

## FEDERAL EMERGENCY MANAGEMENT AGENCY

[Docket No. FEMA 5730]

#### 44 CFR Part 64

### Suspension of Community Eligibility Under the National Flood Insurance Program

AGENCY: Federal Insurance Administration, FEMA.

ACTION: Final rule.

SUMMARY: This rule lists communities where the sale of flood insurance, as authorized under the National Flood

Insurance Program (NFIP), will be suspended because of noncompliance with the flood plain management requirements of the program.

EFFECTIVE DATES: The third date ("Susp.") listed in the fifth column.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Krimm, National Flood Insurance Program, (202) 755-5581 or Toll Free Line 800-424-8872, Room 5270, 451 Seventh Street, SW., Washington, DC 20410.

SUPPLEMENTARY INFORMATION: The National Flood Insurance Program (NFIP), enables property owners to purchase flood insurance at rates made reasonable through a Federal subsidy. In return, communities agree to adopt and administer local flood plain management measures aimed at protecting lives and new construction from future flooding. Section 1315 of the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4022) prohibits flood insurance coverage as authorized under the National Flood Insurance Program (42 U.S.C. 4001-4128) unless an appropriate public body shall have adopted adequate flood plain management measures with effective enforcement measures. The communities listed in this notice no longer meet that statutory requirement for compliance with program regulations (44 CFR Part 59 et seq.). Accordingly, the communities are suspended on the effective date in the fifth column, so that as of that date subsidized flood insurance is no longer available in the community.

In addition, the Federal Insurance Administrator has identified the special flood hazard areas in these communities by publishing a Flood Hazard Boundary Map. The date of the flood map, if one has been published, is indicated in the sixth column of the table. Section 202(a) of the Flood Disaster Protection Act of 1973 (Pub. L. 93-234), as amended, provides that no direct Federal financial assistance (except assistance pursuant to the Disaster Relief Act of 1974 not in connection with a flood) may legally be provided for construction or acquisition of buildings in the identified special flood hazard area of communities not participating in the NFIP, with respect to which a year has elapsed since identification of the community as having flood prone areas, as shown on the Office of Federal Insurance and Hazard Mitigation's initial flood insurance map of the community. This prohibition against certain types of

Federal assistance becomes effective for the communities listed on the date shown in the last column.

The Federal Insurance Administrator finds that delayed effective dates would

be contrary to the public interest. The Administrator also finds that notice and public procedure under 5 U.S.C. 553(b) are impracticable and unnecessary.

In each entry, a complete chronology

of effective dates appears for each listed community.

Section 64.6 is amended by adding in alphabetical sequence new entries to the table.

#### § 64.6 List of suspended communities.

State	County	Location	Community No.	Effective dates of authorization/cancellation of sale of flood insurance in community	Special flood hazard area identified	Date <sup>1</sup>
Alabama	Tuscaloosa	Tuscaloosa, city of	010203A	Apr. 5, 1973, emergency, Feb. 1, 1979, regular, Nov. 15, 1979, suspended.	Oct. 24, 1975	Nov. 15, 1979.
California	San Mateo	Woodside, town of	060330B	Feb. 18, 1972, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	June 14, 1974 Apr. 9, 1976	Do.
Florida	Brevard	Melbourne Village, town of	120328C	Aug. 26, 1974, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Feb. 15, 1974 Feb. 13, 1976	Do.
Idaho	Bingham	Unincorporated areas	160018B	June 25, 1974, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	June 20, 1978	Do.
Illinois	Du Page	West Chicago, city of	170219B	July 7, 1975, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Apr. 12, 1974	Do.
Indiana	Clark	Charlestown, city of	180025B	Oct. 16, 1975, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Apr. 12, 1974	Do.
Maine	Kennebec	Hallowell, city of	230069B	Jan. 13, 1975, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Feb. 1, 1974 Apr. 16, 1976	Do.
Michigan	Berrien	Bridgman, city of	260033B	Mar. 2, 1973, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	June 7, 1974 June 11, 1976	Do.
Mississippi	Madison	Canton, city of	280109B	Aug. 9, 1974, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	June 7, 1974 May 21, 1976	Do.
Do	Lowndes	Unincorporated areas	280193B	Jan. 14, 1974, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Nov. 4, 1977	Do.
New Jersey	Bergen	Elmwood Park, borough of	340500A	May 26, 1972, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	Jan. 4, 1974	Do.
Pennsylvania	Montgomery	Hatfield, township of	420699B	Apr. 21, 1972, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	July 26, 1974 Aug. 13, 1976	Do.
Washington	Garfield	Pomeroy, city of	530048B	Feb. 15, 1974, emergency, July 17, 1978, regular, Nov. 15, 1979, suspended.	Apr. 12, 1974 Jan. 16, 1976	Do.
Do	Kitsap	Port Orchard, city of	530094B	June 10, 1975, emergency, Nov. 15, 1979, regular, Nov. 15, 1979, suspended.	June 21, 1974 Mar. 19, 1976	Do.

<sup>1</sup> Date certain Federal assistance no longer available in special flood hazard area.

(National Flood Insurance Act of 1968 (title XIII of the Housing and Urban Development Act of 1968); effective Jan. 28, 1969 (33 FR 17804, Nov. 28, 1968), as amended, 42 U.S.C. 4001-4128; Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator, 44 FR 20963)

Issued: October 24, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-33984 Filed 11-2-79; 8:45 am]

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#### 44 CFR Part 65

[Docket No. FEMA 5720]

#### Communities With Minimal Flood Hazard Areas for the National Flood Insurance Program

AGENCY: Federal Insurance Administration, FEMA.

ACTION: Final rule.

SUMMARY: The Federal Insurance Administrator, after consultation with

local officials of the communities listed below, has determined, based upon analysis of existing conditions in the communities, that these communities' Special Flood Hazard Areas are small in size, with minimal flooding problems. Because existing conditions indicate that the area is unlikely to be developed in the foreseeable future, there is no immediate need to use the existing detailed study methodology to determine the base flood elevations for the Special Flood Hazard Areas.

Therefore, the Administrator is converting the communities listed below

to the Regular Program of the National Flood Insurance Program (NFIP) without determining base flood elevations.

**EFFECTIVE DATE:** Date listed in fourth column of List of Communities with Minimal Flood Hazard Areas.

**FOR FURTHER INFORMATION CONTACT:** Mr. Robert G. Chappell, National Flood Insurance Program, (202) 426-1460 or Toll Free Line 800-424-8872, Room 5150, 451-Seventh St., S.W., Washington, D.C. 20410.

**SUPPLEMENTARY INFORMATION:** In these communities, the full limits of flood insurance coverage are available at



actuarial, non-subsidized rates. The rates will vary according to the zone designation of the particular area of the community.

Flood Insurance for contents, as well as structures, is available. The maximum coverage available under the Regular Program is significantly greater than that available under the Emergency Program.

Flood insurance coverage for property located in the communities listed can be

purchased from any licensed property insurance agent or broker serving the eligible community, or from the National Flood Insurance Program. The effective date of conversion to the Regular Program will not appear in the Code of Federal Regulations except for the page number of this entry in the Federal Register.

The entry reads as follows:

management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

**EFFECTIVE DATE:** The date of issuance of the Flood Insurance Rate Map (FIRM), showing base (100-year) flood elevations for the community.

**ADDRESSES:** See table below.

**FOR FURTHER INFORMATION CONTACT:** Mr. R. Gregg Chappell, National Flood Insurance Program, (202) 426-1460 or Toll Free Line (800) 424-8872 (in Alaska and Hawaii call Toll Free Line (800) 424-9080, Room 5150, 451 7th Street SW., Washington, D.C. 20410.

**SUPPLEMENTARY INFORMATION:** The Federal Insurance Administrator gives notice of the final determinations of flood elevations for each community listed.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448)), 42 U.S.C. 4001-4128, and 44 CFR 67.4(a) (presently appearing at its former Title 24, Chapter 10, Part 1917.4(a) of the Code of Federal Regulations). An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided, and the Administrator has resolved the appeals presented by the community.

The Administrator has developed criteria for flood plain management in flood-prone areas in accordance with 44 CFR Part 60 (formerly 24 CFR Part 1910).

The final base (100-year) flood elevations for selected locations are:

#### § 65.7 List of communities with minimal flood hazard areas.

State	County	Community name	Date of conversion to regular program
New Jersey	Atlantic	City of Northfield	Nov. 2, 1973.
Louisiana	Avoyelles Parish	Town of Bunkie	Nov. 5, 1973.
Missouri	Clay	Village of Oakview	Nov. 6, 1973.
Washington	Spokane	City of Cheney	Nov. 6, 1973.
Illinois	Cook	Village of La Grange	Nov. 9, 1973.
Indiana	Knox	Town of Decker	Nov. 9, 1973.
Michigan	Easton	City of Olivet	Nov. 9, 1973.
Ohio	Miami	City of Piqua	Nov. 9, 1973.
Wisconsin	Outagamie	City of Seymour	Nov. 9, 1973.
New Mexico	Union	Town of Clayton	Nov. 13, 1973.
North Dakota	Stutsman	City of Kensal	Nov. 20, 1973.
North Dakota	Barnes	City of Litchville	Nov. 20, 1973.
Pennsylvania	Crawford	Borough of Spartansburg	Nov. 23, 1973.
Arkansas	Cleburne	City of Heber Springs	Nov. 27, 1973.
Missouri	Putnam	City of Unionville	Nov. 27, 1973.
Oklahoma	Pontotoc	Town of Roff	Nov. 27, 1973.
New York	Orange	Town of Highlands	Nov. 30, 1973.
New York	Orleans	Village of Albion	Nov. 30, 1973.
New York	Orleans	Village of Holley	Nov. 30, 1973.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended; 42 U.S.C. 4001-4128; Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator, 44 FR 20963)

Issued: October 15, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc 79-33976 Filed 11-2-79; 8:45 am]

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#### 44 CFR Part 67

#### National Flood Insurance Program; Final Flood Elevation Determinations

**AGENCY:** Federal Insurance  
Administration, FEMA.

**ACTION:** Final rule.

**SUMMARY:** Final base (100-year) flood elevations are listed below for selected locations in the nation.

These base (100-year) flood elevations are the basis for the flood plain

#### Final Base (100-Year) Flood Elevations

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)
Illinois	(V) Milan, Rock Island County (Docket No. FI-5098).	Rock River	Northwestern corporate limits	*563
			Upstream side of Lock No. 30 at Carr Island	*567
			Northeastern corporate limits	*569
		M21 Creek	Mouth at Rock River	*565
			Upstream side of State Highway 92	*567
			Upstream side of Interstate 280	*570
			Upstream side of Knoxville Road	*579
			1,000 feet upstream of Knoxville Road	*581
			3,600 feet downstream of Sycamore Lane	*598
			Downstream side of Sycamore Lane	*601

## Final Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)
		Eckhart Creek	Western corporate limits	*563
			940 feet downstream of Chicago, Rock Island & Pacific Railroad	*565
			Downstream side of Andalusia Road	*575
			150 feet upstream of Andalusia Road	*577
		North Channel Rock River	1,700 feet downstream of U.S. Highway 67	*563
			300 feet upstream of U.S. Highway 67	*565
			10,400 feet upstream of U.S. Highway 67	*567
		Kyte Creek	Upstream side of Chaney Lane	*572
			Upstream side of Andalusia Road	*574
			300 feet downstream of Ridgewood Road	*581
			Southwestern corporate limits	*587
Maps available at: Village Hall, 321 West Second Street, Milan, Illinois 61264.				
Indiana	Crown Point, (City), Lake County (Docket No. FI-4791).	Main Beaver Dam Ditch	State Route 53	*679
			Madison Street	*682
			Farm Road	*684
			Merrillville Road	*687
			State Route 50	*688
			Conrail	*688
		South Tributary Main Beaver Dam Ditch	Summit Street	*694
			Pratt Street	*694
			Wirtz Road	*694
			U.S. Route 831	*695
Maps are available at: The Crown Point City Hall, Crown Point, Indiana.				
Mississippi	Greenwood (City), Leflore County (Docket No. FI-4705).	Yazoo and Tallahatchie Rivers	Fort Pemberton Cutoff (downstream crossing)	*130
			Grand Boulevard Bridge	*131
		Walker Lake Canal	Airport	*124
			Sycamore Street	*125
			Illinois Central Gulf Railroad Spur—50 feet upstream of centerline	*127
		Craig Canal	U.S. Highway 82	*128
Maps are available at: City Hall, Church and Main Streets, Greenwood, Mississippi.				
Nebraska	(C) North Bend, Dodge County (Docket No. FI-5141).	Platte River	5,400 feet downstream of Highway 79	*1,266
			4,500 feet downstream of Highway 79	*1,268
			Just downstream of Highway 79	*1,272
			1,000 feet upstream of Highway 79	*1,274
			2,800 feet upstream of Highway 79	*1,275
			5,600 feet upstream of Highway 79 at upstream extraterritorial limit	*1,279
			6,000 feet upstream of Highway 79	*1,279
			9,000 feet upstream of Highway 79	*1,281
Maps available at: City Hall, 741 Main Street, North Bend, Nebraska 68649.				
Nebraska	(C) Valley, Douglas County (Docket No. 4718).	Elkhorn River	Southeast section of zoning limits bounded by County Road 96 and Union Pacific Railroad.	*1,130
		Platte River	Northeast portion of the zoning limits bounded roughly by County Road 17 to the north, County Road 104 to the west, Potter Avenue to the south, and a ridge-like area of higher ground about third of a mile east of County Road 104.	#1'
			Area within the extraterritorial zoning limits excluding those areas specified above.	#2'
Maps available at: City Hall, 210 North Locust, Valley, Nebraska 68064.				
New York	Southold, (Town), Suffolk County (Docket No. FI-4153).	Long Island Sound	Luther Road	*11
			Reeve Avenue (Extended)	*11
			West Phalia Avenue	*11
			Duck Pond Road (Extended)	*11
			Kennys Road	*11
			Horton Lane	*11
			Lighthouse Road (Extended)	*11
			Mill Road	*11
			North Road	*11
			Intersection of Albertson Lane and Main Road 25	*11
			Rocky Point Road (Extended)	*11
			Westwood Lane (Extended)	*11
			Youngs Lane (Extended)	*11
			Greenway East (Extended)	*11
			Ryder Farm Lane (Extended)	*11
		Peconic Bay	Laurel Lane (Extended)	*0
			Delmar Drive (Extended)	*0
			Bay Avenue (Extended)	*0
			Camp Minrola Road	*0
			Marratooka Road (Extended)	*0
			Intersection of Moores Lane and New Suffolk Avenue	*0
			New Suffolk Avenue (Extended)	*0
			Harbor Road (Extended)	*0
		Gardiners Bay	Intersection of Main Road 25 and Albacore Drive	*0
			North Bay View Road and Goose Creek	*0
			Gin Lane	*0
			Manhasset Avenue	*0
			Kerwin Boulevard	*0
			Main Road 25 at Pipes Cove	*0

## Final Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)
Pennsylvania	Londonderry, (Township), Dauphin County (Docket No. FI-5286).	Susquehanna River	Shore Drive (Extended)	*8
			Intersection of Main Street and King Street	*8
			Main Road 25 along Orient Harbor	*8
			Main Road 25 and Little Bay	*8
			King Street along Orient Beach	*8
		Conewago Creek East	Downstream Corporate Limits	*291
			Upstream Corporate Limits	*301
			At Mouth	*294
			Upstream side Engle Road Bridge	*309
			Downstream of Hillsdale Road Bridge	*322
		Swatara Creek	Upstream of Conrail Railroad Bridge	*348
			Upstream of Deodale Road Bridge	*371
			Upstream of Harrisburg Pike Bridge	*386
			Upstream Corporate Limits	*388
			Downstream Corporate Limits	*302
			Upstream side Harrisburg Pike Bridge	*306
			Upstream side of Vine Street Bridge	*309
			Upstream side of Interstate 283 Bridge	*311

Maps are available at: The Town Hall, Main Road, Southold, New York.

Maps are available at: The Londonderry Township Office, Middletown, Pennsylvania.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended; 42 U.S.C. 4001-4128; Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator 44 FR 20963)

Issued: October 11, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-33977 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

#### 44 CFR Part 67

#### National Flood Insurance Program; Final Flood Elevation Determinations

**AGENCY:** Federal Insurance Administration, FEMA.

**ACTION:** Final rule.

**SUMMARY:** Final base (100-year) flood elevations are listed below for selected locations in the nation.

These base (100-year) flood elevations are the basis for the flood plain management measures that the

community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

**EFFECTIVE DATE:** The date of issuance of the Flood Insurance Rate Map (FIRM), showing base (100-year) flood elevations, for the community.

**ADDRESSES:** See table below.

**FOR FURTHER INFORMATION CONTACT:** Mr. R. Gregg Chappell, National Flood Insurance Program, (202) 426-1460 or Toll Free Line (800) 424-8872 (In Alaska and Hawaii call Toll Free (800) 424-9080), Room 5150, 451 Seventh Street, SW, Washington, D.C. 20410.

**SUPPLEMENTARY INFORMATION:** The Federal Insurance Administrator gives notice of the final determinations of flood elevations for each community listed.

This final rule is issued in accordance with Section 110 of the Flood Disaster Protection Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448)), 42 U.S.C. 4001-4128, and 44 CFR Part 67.4(a) (presently appearing at its former Title 24, Chapter 10, Part 1917.4(a) of the Code of Federal Regulations). An opportunity for the community or individuals to appeal this determination to or through the community for a period of ninety (90) days has been provided, and the Administrator has resolved the appeals presented by the community.

The Administrator has developed criteria for flood plain management in flood-prone areas in accordance with 44 CFR Part 60 (formerly 24 CFR Part 1910).

The final base (100-year) flood elevations for selected locations are:

#### Final Base (100-year) Flood Elevations

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)
California	Yountville (City), Napa County; FI-4632.	Napa River	Yountville Crossroads 100 feet upstream from centerline	*98
Maps are available at City Hall, Yountville, California. Send comments to: Honorable Joseph Chavoen, Mayor, city of Yountville, P.O. Box 2590, Yountville, California 94599.				
Minnesota	(C) Delano, Wright County (Docket No. FI-4868).	South Fork Crow River	Northern corporate limits	*924
			200 feet downstream of Bridge Avenue	*925
			Just upstream of U.S. Highway 12	*928
			Southern corporate limits	*929
Send Comments to City Hall, Delano, Minnesota 55328.				

## Final Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	# Depth in foot above ground. *Elevation in foot (NGVD)
Nevada	Douglas County (unincorporated), Douglas County, FI-4208.	Carson River	Muller Lane	*4,679
			Genoa Lane	*4,673
			Highway 395	*4,654
		East Carson River	Washoe Bridge (upstream)	*4,920
			Washoe Bridge (downstream)	*4,914
			River View Drive	*4,821
			Highway 56	*4,763
			Highway 88	*4,713
		West Carson River	Dresslerville Lane	*4,700
			Highway 88	*4,741
			Centerville Lane	*4,712
			Waterloo Lane	*4,697
		Pine Nut Creek	Myers Drive	*5,084
			Jo Lane	*4,987
		Rocky Slough	Highway 56	*4,770
			Highway 88	*4,723
		Martin Slough	Highway 395 (at Gardnerville)	*4,751
			Highway 395 (north of Minden) (upstream)	*4,701

Maps are available at Public Works Department, Valley Professional Building, Minden, Nevada 89423.

Send comments to Mr. Bob Hatfield, County Manager, Douglas County, Nevada, P.O. Box 218, Minden, Nevada 89423.

Pennsylvania	Piatt Township, Lycoming County (Docket No. FI-5228).	West Branch Susquehanna River	Downstream Corporate Limits	*543
			Upstream Corporate Limits	*550
		Pine Run	Corporate Limits (Downstream)	*543
			Township Route 354 (Upstream)	*540
			Route 220 East (Upstream)	*554
			Route 220 West (Upstream)	*555
			Private Bridge	*570
		Larry's Creek	Conrail	*548
			Forge Hill Road (Upstream)	*550
			Township Route 365 (Downstream)	*550
			Township Route 365 (Upstream)	*555
			Pennsylvania Route 287 (Upstream)	*559
			Upstream Corporate Limits	*579

Maps are available at: the Piatt Township Building, R. D. 3, Jersey Shore, Pennsylvania.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17004, November 28, 1968), as amended; 42 U.S.C. 4001-4128; Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator 44 FR 20963).

Issued: October 18, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-33963 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

#### 44 CFR Part 67

#### National Flood Insurance Program; Final Flood Elevation Determinations

AGENCY: Federal Insurance  
Administration, FEMA.

ACTION: Final rule.

SUMMARY: Final base (100-year) flood  
elevations are listed below for selected  
locations in the nation.

These base (100-year) flood elevations  
are the basis for the flood plain  
management measures that the

community is required either to adopt or  
show evidence of being already in effect  
in order to qualify or remain qualified for  
participation in the National Flood  
Insurance Program (NFIP).

EFFECTIVE DATE: The date of issuance of  
the Flood Insurance Rate Map (FIRM),  
showing base (100-year) flood  
elevations, for the community.

ADDRESS: See table below.

FOR FURTHER INFORMATION CONTACT:  
Mr. R. Gregg Chappell, National Flood  
Insurance Program, (202) 426-1460 or  
Toll Free Line (800) 424-8872 (In Alaska  
and Hawaii Call Toll Free (800) 424-  
9080), Room 5148, 451 Seventh Street  
SW., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The  
Federal Insurance Administrator gives  
notice of the final determination of flood  
elevations for each community listed.

This final rule is issued in accordance  
with section 110 of the Flood Disaster  
Protection Act of 1968 (Title XIII of the  
Housing and Urban Development Act of  
1968 (Pub. L. 90-448), 42 U.S.C. 4001-  
4128, and 44 CFR Part 67.4(a)). An  
opportunity for the community or  
individuals to appeal this determination  
to or through the community for a period  
of ninety (90) days has been provided.  
No appeals of the proposed base flood  
elevations were received from the  
community or from individuals within  
the community.

The Administrator has developed  
criteria for flood plain management in  
flood-prone areas in accordance with 44  
CFR Part 60.

The final base (100-year) flood  
elevations for selected locations are:

## Final Base (100-year) Flood Elevations

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)	
Arizona	Patagonia (Town), Santa Cruz County (Docket No. FI-5031).	Sonoita Creek	Downstream Corporate Limits	*4026	
			Confluence with Tributary E—50 feet upstream	*4031	
			Confluence with Tributary D	*4046	
			Confluence with Tributary B	*4050	
			Confluence with Tributary A	*4057	
			Sonoita Avenue—50 feet upstream from centerline	*4060	
			Naugle Avenue (U.S. Highway 82)—at centerline	*4067	
			Confluence with Harshaw Creek	*4073	
			Upstream Corporate Limits	*4100	
		Tributary A	Confluence with Sonoita Creek	*4057	
			Second Avenue—at centerline	*4062	
		Harshaw Creek	Corporate Limits	*4078	
			Confluence with Sonoita Creek	*4073	
		Redrock Creek	Confluence with Redrock Creek	*4094	
Corporate Limits—100 feet downstream	*4108				
Confluence with Harshaw Creek	*4094				
		Corporate Limits	*4106		
Maps are available at: City Hall, Patagonia, Arizona.					
Arizona	Payson (Town), Gila County (Docket No. FI-5324).	American Gulch	Sewage Disposal Facility Road—90 feet upstream from centerline	*4,763	
			(2nd Crossing) Sewage Disposal Facility Road—20 feet upstream from centerline	*4,771	
			South Vista Road—50 feet downstream from centerline	*4,801	
			South Vista Road—100 feet upstream from centerline	*4,807	
			South Verde Drive—40 feet upstream from centerline	*4,839	
			South Molave Road—125 feet upstream from centerline	*4,877	
			Approximately 200 feet northwest of the intersection of West Doll Baby Road and Sewer Disposal Facility Road	#3	
			Molave Road—30 feet upstream from centerline	*4,936	
			North Double Tree Circle—60 feet upstream from centerline	*4,941	
			West Forest Drive—50 feet upstream from centerline	*4,945	
		American Gulch Tributary from North			
Maps are available at: Town Hall, 303 North Beeline Highway, Payson, Arizona.					
Arkansas	City of Conway, Faulkner County (FI-4653).	Gold Creek	Approximately 200 feet upstream of County Road	*278	
			Approximately 150 feet upstream of Farm Road	*282	
		Little Creek Main Stem	Just downstream of Brookfield Drive	*297	
			Approximately 100 feet downstream of Mockingbird Lane	*284	
			Approximately 100 feet upstream of U.S. Highway 64	*295	
		Little Creek Tributary No. 1	Just downstream of Simon Street (Extended)	*284	
		Little Creek Tributary No. 2	Just upstream of Pamela Lane (Extended)	*299	
		Railroad Creek	Just upstream of Siebenmorgan Road	315	
			Just downstream of Robins Street	*296	
		Stonedam Creek	Just upstream of South Boulevard	*299	
			Just upstream of Hillman Street (Extended)	*294	
		Tucker Creek	Just upstream of Salem Road	*292	
			Just downstream of College Avenue	*296	
			Approximately 150 feet upstream of Prince Street	*309	
Maps available at: The Municipal Building, Conway, Arkansas 72032.					
California	Montebello (City), Los Angeles County (Docket No. FI-5202).	Rio Hondo Channel	Area along the south side of Lincoln Avenue and east of Rio Del Sol Avenue (Whittier Narrows Flood Control Basin).	*220	
		Ponding	Area between the intersection of Mines Avenue and Taylor Avenue and the Union Pacific Railroad.	*186	
		Shallow Flooding	Intersection of Garfield Avenue and Via Paseo	#1	
		Shallow Flooding	Intersection of Garfield Avenue and Via Paseo	#1	
			Corona	#1	
Maps are available at: City Hall, 1600 Beverly Boulevard, Montebello, California.					
California	San Leandro (City), Alameda County (Docket No. FI-5166).	San Francisco Bay	At intersection of Neptune Drive and Lewelling Boulevard	*7	
		San Leandro-Line A (Zone 2)	Southern Pacific Railroad (downstream crossing)—10 feet upstream from centerline	*8	
			Morton Street—75 feet upstream from centerline	*16	
			Manor Boulevard—10 feet upstream from centerline	*20	
			Hesperian Boulevard—50 feet upstream from centerline	*28	
		San Leandro-Line B (Zone 9)	Merced Street—80 feet upstream from centerline	*11	
		San Leandro-Line C (Zone 9)	Fairway Drive—at centerline	*20	
			Juniper Street—10 feet upstream from centerline	*9	
		San Leandro-Line D (Zone 9)	Corvallis Street—40 feet upstream from centerline	*17	
			Wicks Boulevard—60 feet upstream from centerline	*9	
		San Leandro Creek—Line P	Nimitz Freeway—at centerline	*17	
			San Leandro Boulevard—10 feet upstream from centerline	*42	
			Foothill Boulevard—at centerline	*57	
		Maps available at: City Hall, 835 East 14th Street, San Leandro, California.			

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
Colorado	Basalt (Town), Eagle County (Docket No. FI-5326).	Roaring Fork River	East Cottonwood Drive—35 feet upstream from centerline	*6,595
			(Last) Corporate Limits—at centerline	*6,609
		Fryingpan River	State Highway 82—40 feet upstream from centerline	*6,591
			Swinging Bridge Lane—60 feet upstream from centerline	*6,600
			South Cottonwood Drive—15 feet upstream from centerline	*6,607
Maps are available at: Town Hall, 214 Midland Avenue, Basalt, Colorado.				
Colorado	Eagle (Town), Eagle County (Docket No. FI-5329).	Brush Creek	Farm Bridge—50 feet upstream from centerline	*6,531
			Most upstream Corporate Limit—at centerline	*6,540
Maps are available at: Town Hall, 108 West Second Street, Eagle, Colorado.				
Colorado	Lafayette (City), Boulder County (Docket No. FI-4486).	Coat Creek	South 120th Street—50 feet upstream from centerline	*5,142
			Burlington Northern Railroad—100 feet upstream from centerline	*5,147
			U.S. Highway 287 Most Upstream Corporate Limits	*5,260
		Rock Creek	Downstream Corporate Limits—100 feet upstream	*5,136
			South 120th Street	*5,152
			Upstream Corporate Limits	*5,194
Maps are available at: City Hall, 201 East Simpson, Lafayette, Colorado.				
Colorado	Lyons (Town), Boulder County (Docket No. FI-4362).	St. Vrain Creek	Downstream Corporate Limits	*5,290
			Private Road Bridge at Centerline	*5,298
			Confluence with North and South St. Vrain Creeks	*5,322
		North St. Vrain Creek	Confluence with St. Vrain and South St. Vrain Creeks	*5,322
			5th Avenue (State Highway 7), 20 feet upstream from centerline	*5,337
			U.S. Highway 36, 40 feet upstream from centerline (first crossing)	*5,371
			U.S. Highway 36 at centerline (second crossing)	*5,392
			Upstream Corporate Limits	*5,396
		South St. Vrain Creek	Confluence with St. Vrain and North St. Vrain Creeks	*5,322
			Upstream Corporate Limits	*5,335
Maps are available at: Town Hall, 432 Fifth Avenue, Lyons, Colorado.				
Colorado	Weld County, Unincorporated Areas (Docket No. FI-5133).	South Platte River	Confluence with the Cache La Poudre River	*4,601
			Weld County Road—50 feet upstream from centerline	*4,612
U.S. Highway 34—at centerline			U.S. Highway 34 Bypass—at centerline	*4,624
			37th Street and County Road 54—at centerline	*4,639
			Union Pacific Railroad—at centerline	*4,650
			14th Street—at centerline	*4,666
			State Highway 52—50 feet upstream from centerline	*4,699
		U.S. Highway 34 Levee Overflow Channel.	County Road 45 1/2—at centerline	*4,614
			U.S. Highway 34 Levee—at centerline	*4,622
		Cache La Poudre	Fern Avenue—at centerline	*4,613
			Ash Avenue—100 feet upstream from centerline	*4,627
			U.S. Highway 85—at centerline	*4,639
			Union Pacific Railroad—at centerline	*4,645
			25th Avenue—at centerline	*4,662
			35th Avenue and County Road 35—50 feet upstream from centerline	*4,669
			Colorado and Southern Railroad—100 feet upstream from centerline	*4,693
			50th Avenue—100 feet upstream from centerline	*4,691
		Cache La Poudre River	750 feet east of the intersection of U.S. Highway 85 and County Road 41.	#2
			400 feet north of State Highway 263 between County Roads 43 and 41 1/2.	#2
		Sheep Draw	West C Street—100 feet upstream from centerline	*4,709
			West 47th Street—150 feet upstream from centerline	*4,725
			U.S. Alternate Highway 34—150 feet upstream from centerline	*4,744
			71st Avenue—50 feet upstream from centerline	*4,772
			83rd Avenue—200 feet upstream from centerline	*4,808
			Stock Pond Dam—75 feet downstream from centerline	*4,824
			Stock Pond Dam—125 feet upstream from centerline	*4,831
			County Road 58—30 feet upstream from centerline	*4,844
			County Road 58—25 feet upstream from centerline	*4,852
		Ashcroft Draw	49th Street—at centerline	*4,878
			Arrowhead Dam—90 feet downstream from centerline	*4,745
			Arrowhead Dam—50 feet upstream from centerline	*4,755
			65th Avenue—80 feet upstream from centerline	*4,762
		Eaton Draw	6th Avenue—at centerline	*4,047
			U.S. Highway 85—275 feet downstream from centerline	*4,652
			U.S. Highway 85—75 feet upstream from centerline	*4,660
			County Road 64—200 feet upstream from centerline	*4,695
			Union Pacific Railroad (1st crossing)—at centerline	*4,690
			Union Pacific Railroad (1st crossing)—185 feet upstream from centerline	*4,700
			County Road 74—150 feet downstream from centerline	*4,802
			County Road 74—50 feet upstream from centerline	*4,808
			County Road 75—50 feet upstream from centerline	*4,817
			County Road 76—75 feet upstream from centerline	*4,837
			Union Pacific Railroad (2nd crossing)—75 feet downstream from centerline	*4,838

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	# Depth in feet above ground. *Elevation in feet (NGVD)
			Union Pacific Railroad (2nd crossing)—50 feet upstream from centerline.	*4,845
		Tri-Area Drainageway	Confluence with Tri-Area Drainageway Overflow Channel.	*4,960
			1st Street—at centerline.	*4,970
			County Road 14—70 feet downstream from centerline.	*5,006
		Tri-Area Drainageway	County Road 14—40 feet upstream from centerline.	*5,012
		Tri-Area Drainageway Overflow Channel.	Confluence with Tri-Area Drainageway.	*4,960
			Divergence from Tri-Area Drainageway.	*4,970
Maps available at: County Planner's Office, Department of Planning Services, Weld County Centennial Building, 915 Tenth Street, Greeley, Colorado.				
Connecticut	Groton Long Point Association.	Fishers Island Sound	Atlantic Avenue and Bridge Street	*11
	New London County (Docket No. FI-5539).		Shore Avenue South and Sound Breeze Avenue	*11
			Shore Avenue and Sound Breeze Avenue	*11
Maps are available at: The Fire House, Groton Long Point, Connecticut.				
Connecticut	Orange (Town), New Haven County (Docket No. 5707).	Housatonic River	Downstream Corporate Limits	*15
			Upstream Corporate Limits	*20
		Wepawaug River	Downstream Corporate Limits	*67
			Dorby Milford Road (Upstream)	*73
			Prudden Lane (Upstream)	*80
			Grassy Hill Road (Upstream)	*83
			Old Grassy Hill Road (Upstream)	*91
			Confluence of Race Brook	*92
		Race Brook	Confluence with Wepawaug River	*92
			Mapledale Avenue (Upstream)	*97
			Orange Center Road (Upstream)	*106
			Lambert Road (Downstream)	*114
		Indian River	Downstream Corporate Limits	*40
			Confluence of Silver Brook	*40
			Boston Post Road (Downstream)	*47
			Boston Post Road (Upstream)	*54
			Old Tavern Road (Upstream)	*63
			Lambert Road (Upstream)	*115
			Arch Culvert (Downstream)	*118
			Arch Culvert (Upstream)	*134
			Hall Drive (Upstream)	*134
			Tyler City Road (Upstream)	*142
			State Route 114 (Downstream)	*155
		Silver Brook	Confluence with Indian River	*40
			Lambert Road (Upstream)	*56
			Boston Post Road (Upstream)	*64
			Old Tavern Road (Upstream)	*80
			Race Brook Road (State Route 114) (Upstream)	*93
			Smith Farm Road (Upstream)	*102
			Unnamed Road (1,850 feet upstream of Smith Farm Road) (Upstream).	*119
			Unnamed Road (2,100 feet upstream of Smith Farm Road) (Upstream).	*123
			Dam (80 feet upstream of Unnamed Road) (Upstream)	*126
			Telephone Easement (Upstream)	*166
			New Haven Avenue (Upstream)	*170
			Crickett Lane (Upstream)	*172
			Kennedy Drive (Upstream)	*183
			Russell Avenue (Upstream)	*194
			Dam (500 feet upstream of Russell Drive) (Upstream)	*200
			Earth Dam (800 feet upstream of Russell Drive) (Upstream)	*204
			Dirt Road (2,500 feet downstream of Cummings Drive) (Upstream)	*205
			Unnamed Road (250 feet downstream of Cummings Drive) (Upstream).	*208
			Cummings Drive (Upstream)	*209
			Derby Turnpike (Downstream)	*209
Maps are available at: The Office of the Town Engineer, Town Hall, Orange, Connecticut.				
Connecticut	Groton Long Point Association.	Fishers Island Sound	Atlantic Avenue and Bridge Street	*11
	New London County (Docket No. FI-5539).		Shore Avenue South and Sound Breeze Avenue	*11
			Shore Avenue and Sound Breeze Avenue	*11
Maps are available at: The Fire House, Groton Long Point, Connecticut.				
Florida	City of Altamonte Springs, Seminole County (FI-5541).	Lake Adelaide	Entire shoreline	*61
		Crances Roost	Entire shoreline	*61
		Lake Destiny	Entire shoreline	*91
		Lake Florida	Entire shoreline	*61
		Lake Lotus	Entire shoreline	*64
		North Lake	Entire shoreline	*62
		Lake Orienta	Entire shoreline	*67
		Pearl Lake	Entire shoreline	*61
		Pot Lake	Entire shoreline	*88
		Prairie Lake	Entire shoreline	*88

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in foot (NGVD)
		Spring Wood Lake.....	Entire shoreline.....	*91
		Lake Tillie.....	Entire shoreline.....	*53
		Trout Lake.....	Entire shoreline.....	*63
		Little Wekiva River.....	Downstream from Seaboard Coast Line Railroad.....	*50
			Downstream from Montgomery Road.....	*35
		Tributary A.....	Downstream from extended Richbee Drive.....	*42
		Tributary B.....	Downstream from S.R. 434.....	*47
Maps available at: City Hall, 225 Newburyport Avenue, Altamonte Springs, Florida 32701.				
Florida.....	City of Lake Mary, Seminole County (FI-5504).	Lake Bingham.....	Entire Shoreline.....	*44
		Lake Irish.....	Northern corporate limits.....	*40
		Sawyer Lake.....	Entire shoreline.....	*40
		Island Lake.....	Entire shoreline.....	*40
		Lake Marietta.....	Entire shoreline.....	*40
		Lake Como.....	Entire shoreline.....	*48
		Dawson Lake.....	Entire shoreline.....	*48
		Crystal Lake.....	At Goodheart Avenue.....	*40
		Little Crystal Lake.....	Eastern corporate limits.....	*45
		Big Lake Mary.....	At Evansdale Road.....	*45
		Little Lake Mary.....	Eastern corporate limits.....	*45
		Lake Emma.....	Entire shoreline.....	*47
		Lake 1.....	Entire shoreline.....	*48
		Lake 2.....	Entire shoreline.....	*48
		Lake 3.....	Entire shoreline.....	*48
		Lake 4.....	Entire shoreline.....	*47
		Lake 5.....	Entire shoreline.....	*47
		Lake 6.....	Entire shoreline.....	*47
		Lake 7.....	Entire shoreline.....	*47
		Soldier Creek.....	Just upstream of Wagon Wheel Road.....	*35
			Just upstream of Wood Street.....	*40
Maps available at: City Hall, 185 East Crystal Lake Avenue, Lake Mary, Florida 32746.				
Florida.....	City of Longwood, Seminole County (FI-5505).	Lake Wildmere.....	Entire shoreline.....	*62
		Fairy Lake.....	Entire shoreline.....	*50
		East Lake.....	Entire shoreline.....	*66
		West Lake.....	Entire shoreline.....	*66
		Lake Searcy.....	Entire shoreline.....	*67
		Lake Windsor.....	Entire shoreline.....	*66
		Mud Lake.....	Entire shoreline.....	*65
		Prairie Lake.....	Entire shoreline.....	*65
		Island Lake.....	Entire shoreline.....	*65
		Rock Lake.....	Entire shoreline.....	*81
		Lake Ruth.....	Entire shoreline.....	*64
		Lake Fairy Drainage Canal.....	Just upstream of Marvin Avenue.....	*76
			Just upstream of Wildmere Avenue.....	*78
		Canal connecting Lake Wildmere and Fairy Lake.....	Just upstream of overstreet extended.....	*60
Maps available at: City Hall, 175 West Warren Avenue, Longwood, Florida 32750.				
Florida.....	Town of Orange Park, Clay County (FI-5506).	Dudley Branch.....	200 feet upstream of Nelson Drive.....	*6
			Just downstream of Kingsley Avenue.....	*7
			Just upstream of Morgan Street.....	*9
		Doctors Lake Tributary No. 1.....	100 feet upstream of Dogwood Lane.....	*6
			100 feet upstream of SCL R.R. Bridge.....	*10
		St. Johns River.....	At the southern corporate limits.....	*6
		Johnson Slough.....	At U.S. 17.....	*6
			Just upstream of Nelson Drive South.....	*6
Maps available at: Town Hall, 2042 Park Avenue, Orange Park, Florida 32072.				
Florida.....	City of St. Marks, Wakulla County (FI-5557).	Hurricane Tidal Surge from Gulf of Mexico.....	Intersection of West Pine Street and Seventh Street.....	*12
			Intersection of Tallahassee Avenue and Riverside Drive.....	*12
Maps available at: Town Hall, Port Leon Drive, St. Marks, Florida 32355.				
Florida.....	City of West Melbourne, Brevard County (FI-5558).	Crane Creek.....	Shannon Avenue extended.....	*23
			Just downstream of Wickham Road.....	*23
Maps available at: City Hall, 90 East Court, Melbourne, Florida 32901.				
Idaho.....	Notus (City), Canyon County (Docket No. FI-5471).	Boise River.....	Notus-Greenleaf Road—100 feet downstream from centerline.....	*2,297
Maps available at: City Hall, Elgin Avenue, Notus, Idaho.				
Illinois.....	Village of East Alton, Madison County (Docket No. FI-4329).	Mississippi River.....	Upstream corporate limits.....	*437
			Downstream corporate limits.....	*437
		Wood River.....	Corporate limits downstream from Illinois Terminal Railroad Bridge.....	*437
			Just downstream from confluence of East and West Fork Wood River.....	*437



## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
		East Fork Wood River	Just upstream from mouth	*437
			Upstream from Burlington Northern Railroad	*438
			Just upstream from Magazine Road	*441
			Approximately 1,300 feet upstream of Magazine Road	*442
			Approximately 2,800 feet upstream of Magazine Road	*445
			At corporate limits	*447
		West Fork Wood River	At mouth	*437
			Northwest corporate limits	*439
		East Alton Ditch	At levee	*434
			Just upstream of Main Street	*435
			Just upstream of Wood River Avenue	*437
			Just upstream of 5th Street	*439
		Maps available at: Zoning Commissioner's Office, Village Hall, East Alton, Illinois 62029.		
Maine	Cornish (Town), York County (Docket No. FI-5548).	Saco River	1,000 feet upstream of downstream Corporate Limits	*279
			4,000 feet upstream of downstream Corporate Limits	*280
			Upstream of Route 5	*281
		Ossipee River	Confluence of the Ossipee River	*283
			Confluence with Saco River	*283
			Upstream of Bridge Street	*286
			1.11 miles upstream of Bridge Street	*291
			Downstream of South Hiram Road	*297
			1.96 miles upstream of South Hiram Road	*303
		Little River	Downstream of confluence of Ossipee River	*286
			Downstream of Old Mill Dam	*308
			Downstream of School Street	*351
		Maps are available at: The Office of the Town Selectmen, Cornish, Maine.		
Maryland	Elkton (Town), Cecil County (Docket No. FI-5174).	Elk River	At confluence of Little and Big Elk Creeks	*8
		Big Elk Creek	At confluence of Little Elk Creek	*8
			U.S. Route 40 Bridge (Upstream)	*11
			South Bridge Street (Upstream)	*14
			State Route 7 (Upstream)	*15
			State Route 281 (Upstream)	*20
			Dam (Upstream)	*22
			Conrail (Upstream)	*31
			State Route 279 (Upstream)	*37
		Little Elk Creek	Confluence with Big Elk Creek	*8
			Old Field Point Road (Upstream)	*8
			Conrail (Upstream)	*12
			U.S. Route 40 (Upstream)	*14
			Wood Trestle Bridge for Railroad Spur (Upstream)	*16
			State Route 279 (Upstream)	*20
		Dogwood Run	Confluence of Dogwood Run	*22
			Confluence with Little Elk Creek	*22
			Blue Ball Road (Downstream)	*31
		Maps are available at: The Town Hall, Elkton, Maryland.		
Michigan	Fraser (Township), Bay County (Docket No. FI-5244).	Saginaw Bay	Along shoreline	*585
		Rosebush Drain	Private Road—40 feet upstream from centerline	*585
			Detroit and Mackinac Railroad Spur Line—20 feet upstream from centerline	*585
			Elevator Road—20 feet upstream from centerline	*586
			Conrail upstream of Elevator Road—30 feet upstream from centerline	*587
			Tower Road—30 feet upstream from centerline	*588
			Michigan State Route 13—20 feet upstream from centerline	*583
		Tap—Gove Drain	Linwood Road—20 feet upstream from centerline	*586
			Mackinaw Road—at centerline	*589
		Tobo Drain	Driveway downstream of Tower Beach Road—100 feet upstream from centerline	*586
			Tower Beach Road—20 feet upstream from centerline	*587
			Detroit and Mackinac Railroad—80 feet upstream from centerline	*591
			Kaiser Road—30 feet upstream from centerline	*584
			Michigan State Route 13—at centerline	*596
		Maps available at: Township Hall, 1474 Mackinaw Road, Linwood, Michigan.		
Missouri	Clay County, FI-5388	Missouri River	Downstream Clay County Limits—at centerline	*722
			Confluence with Shoal Creek—100 feet downstream from centerline	*732
			State Route 291—790 feet upstream from centerline	*734
		Fishing River	Downstream Clay County Limits—500 feet upstream from centerline	*732
			State Highway 10—at centerline	*755
			Confluence with Clear Creek—at centerline	*772
			State Highway 33—500 feet upstream from centerline	*784
			Interstate Highway 35—300 feet downstream from centerline	*792
			County Road—200 feet upstream from centerline	*818
		East Fork Fishing River	Confluence with Fishing River—at centerline	*744
			City of Excelsior Springs Downstream Corporate Limits—at centerline	*751
		Williams Creek	Southbound U.S. Highway 66—1000 feet upstream from centerline	*762
			State Highway 92—at centerline	*807
			Confluence with Williams Creek Tributary—at centerline	*815

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
		Williams Creek Tributary.....	Confluence with Williams Creek—at centerline.....	*815
			Flood Water Retaining Structures—at centerline.....	*849
		Crockett Creek.....	City of Mosby Upstream Corporate Limits—at centerline.....	*787
			County Road—150 feet upstream from centerline.....	*783
			County Road (Upstream Study Limits)—75 feet downstream from centerline.....	*810
		Holmes Creek.....	Chicago, Milwaukee, St. Paul and Pacific Railroad—at centerline.....	*767
			County Road—at centerline.....	*770
			Upstream Study Limits—350 feet downstream from centerline.....	*775
		Clear Creek.....	Confluence with Fishing River—at centerline.....	*772
			State Highway 92—at centerline.....	*785
			State Highway 33—200 feet downstream from centerline.....	*803
			County Road (Upstream Study Limits)—at centerline.....	*808
		Holt Creek.....	Confluence with Clear Creek—2500 feet upstream from centerline.....	*780
			Interstate Highway 35—100 feet upstream from centerline.....	*812
			Clay County Limits—at centerline.....	*865
		Dry Fork.....	City of Excelsior Springs Upstream Corporate Limits—50 feet upstream from centerline.....	*795
			County Road—25 feet upstream from centerline.....	*903
			Upstream Study Limits—50 feet downstream from centerline.....	*908
		Brushy Creek.....	Clay County Limits—225 feet upstream from centerline.....	*984
			Atchison, Topeka & Santa Fe Railroad—100 feet upstream from centerline.....	*1,008
			U.S. Highway 69—150 feet downstream from centerline.....	*1,021
		Brushy Creek Tributary I.....	Confluence with Brushy Creek—200 feet upstream from centerline.....	*1,013
			U.S. Highway 69—upstream from centerline.....	*1,025
		Brushy Creek Tributary II.....	Confluence with Brushy Creek at centerline.....	*1,000
			County Highway D—400 feet upstream from centerline.....	*1,014
			Clay County Limits—100 feet downstream from centerline.....	*1,042
		Little Platte River.....	City of Smithville Downstream Corporate Limits—at centerline.....	*811
			City of Smithville Upstream Corporate Limits—at centerline.....	*815
		First and Second Creeks.....	City of Smithville Upstream Corporate Limits—300 feet upstream from centerline.....	*810
			State Highway 92—at centerline.....	*838
			County Road—700 feet downstream from centerline.....	*848
		Owens Branch.....	U.S. Highway 169—650 feet upstream from centerline.....	*824
			County Road W—150 feet upstream from centerline.....	*850
			Upstream Study Limits—150 feet upstream from centerline.....	*910
		Wilkerson Creek.....	City of Smithville Upstream Corporate Limits at centerline.....	*810
			State Highway 92—800 feet upstream from centerline.....	*841
			County Road—200 feet upstream from centerline.....	*862
			Upstream Study Limits—200 feet downstream from centerline.....	*871
		Rocky Branch.....	Confluence with Wilkerson Creek—400 feet upstream from centerline.....	*840
			Upstream Study Limits—100 feet downstream from centerline.....	*865
		Cates Branch.....	Southview Drive—75 feet upstream from centerline.....	*758
			Ruth Ewing Road—at centerline.....	*782
		Town Branch.....	Burlington Northern—at centerline.....	*733
			County Road—50 feet downstream from centerline.....	*738
			County Road—400 feet upstream from centerline.....	*743
		Shoal Creek.....	Burlington Northern—100 feet upstream from centerline.....	*732
			Birmingham Road—50 feet downstream from centerline.....	*743

Maps available at: County Administrative Offices, 103 East Kansas Avenue, Liberty, Missouri.

Send comments to: Judge Edward J. Bauman, Clay County Court, 103 East Kansas, Liberty, Missouri 64068.

New York.....	Busti (Town); Chautauqua County (Docket No. FI-5389).	Cottage Park Creek.....	Ashville Road (Upstream).....	*1,310
			Gleason Road (Upstream).....	*1,329
		Goose Creek.....	Downstream Corporate Limits.....	*1,312
			State Route 394.....	*1,315
			Upstream Corporate Limits.....	*1,317
		Lake Chautauqua.....	Lomis Road at Corporate Limits.....	*1,310
			Lakeside Road 1,000 feet north of intersection with State Route 394.....	*1,310
			Confluence of Cottage Park Creek.....	*1,310

Maps are available at: The Town Hall, 124 Chautauqua Avenue, Lakewood, New York.

New York.....	Celoron (Village), Chautauqua County (Docket No. FI-5390).	School Creek.....	Jackson Avenue (Upstream).....	*1,318
			Dunham Avenue (Upstream).....	*1,332
			5th Street (Upstream).....	*1,343
		Chautauqua Lake.....	Entire Shoreline.....	*1,310

Maps are available at: The Village Hall, Celoron, New York.

New York.....	East Greenbush (Town); Rensselaer County (Docket No. FI-5391).	Hudson River.....	Downstream Corporate Limits.....	*10
			Upstream Corporate Limits.....	*20

Maps are available at: The Office of the Assessor, Town Hall Annex, East Greenbush, New York.

New York.....	Elery (Town), Chautauqua County (Docket No. FI-5520).	Chautauqua Lake.....	Shore Line.....	*1,310
		Benus Creek.....	Confluence of Chautauqua Lake.....	*1,310
			Main Street (Upstream).....	*1,310
		Dutch Hollow Creek.....	Confluence of Chautauqua Lake.....	*1,310
			Old Route 17 (Upstream).....	*1,320
		Maple Springs Creek.....	Confluence of Chautauqua Lake.....	*1,310
			Chautauqua Avenue Upstream.....	*1,315
			Route 17 Upstream.....	*1,325

Maps are available at: The Office of the Town Clerk, Bemus Point, New York.

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)		
New York	Greece (Town), Monroe County (Docket No. FI-4980.	Buttonwood Creek	Lake Ontario State Parkway	*249		
			North Greece Road (Upstream)	*250		
			Private Road	*256		
		Larkin Creek	Frisbee Hill Road	*259		
			Downstream Lake Ontario State Parkway	*252		
			Upstream Lake Ontario State Parkway	*254		
			Long Pond Road (Upstream)	*260		
			Conrail (Upstream)	*266		
			Latta Road	*306		
			English Road (Upstream)	*344		
			Mill Road (Upstream)	*376		
			Confluence of East Branch Larkin Creek	*376		
			Confluence with Larkin Creek	*376		
		East Branch Larkin Creek	Upstream Private Road	*383		
			Dam (Upstream)	*389		
			Private Road (Upstream)	*390		
			Ridge Road (Upstream)	*417		
			Private Drive (Upstream)	*419		
			Downstream Dam (Downstream)	*425		
			Upstream Dam (Upstream)	*428		
			Elmgrove Road (Upstream)	*435		
			Old Meadow Road (Downstream)	*449		
			Pine Valley Road	*453		
		Northrup Creek	Confluence with Long Pond	*249		
			Flynn Road (Downstream)	*251		
			North Greece Road (1st Crossing)	*258		
			Conrail (Upstream)	*264		
			North Greece Road (4th Upstream Crossing)	*271		
			North Greece Road (5th Upstream Crossing)	*284		
			Private Drive (Upstream)	*294		
			Latta Road	*314		
			Manitou Road	*329		
			Confluence with Round Pond	*249		
		Round Pond Creek	Police Department Road (Upstream)	*254		
			Conrail (Upstream)	*260		
			Kirk Road (Upstream)	*271		
			Wye Bridge Drive (Upstream)	*283		
			Latta Road (Upstream)	*296		
			Dam (Downstream)	*313		
			English Road and Private Drive (Upstream)	*334		
			Farm Road (Upstream)	*339		
			Private Drive (2nd downstream crossing of Maiden Lane)	*375		
			Maiden Lane	*384		
		School Drive	*397			
		Salmon Creek	Old Long Pond Road (Upstream)	*403		
			U.S. Route 104, Ridge Road	*424		
			Doe Run Drive (Upstream)	*433		
			Straub Road	*446		
			Confluence with Braddock Bay	*249		
			Payne Beach Road	*252		
			Slater Creek	Edgemere Drive	*249	
				Downstream Conrail (Upstream)	*252	
				Ling Road (Downstream)	*253	
			Lake Ontario	Upstream Conrail	*261	
		Western Corporate Limits to approximately 1,200 feet east of entrance to Round Pond into Lake Ontario.		*251		
		Approximately 1,200 feet east of entrance of Round Pond into Lake Ontario to eastern Corporate Limits.		*249		
		Maps are available at: The Town Hall, Greece, New York.				
		New York	Menands (Village), Albany County (Docket No. 5708).	Hudson River	Downstream Corporate Limits	*22
					Upstream Corporate Limits	*24
		Maps are available at: The Municipal Building, 250 Broadway, Menands, New York.				
		New York	Rensselaer (City), Rensselaer County (Docket No. FI-5393).	Hudson River	Dunn Memorial Bridge	*21
					Albany Tidal Gauge Station	*21
					Amtrak Railroad Bridge	*21
				Mill Creek	Interstate 90	*22
U.S. Route 9 & 20 (Exit Ramp)	*22					
U.S. Route 9 & 20	*22					
Broadway Avenue	*22					
Washington Street	*22					
Huyck Felt Mill Culvert	*22					
Third Street	*22					
Second Avenue	*22					
Conrail	*22					
South Avenue	*22					
Quackenderry Creek	Abandoned Railroad crossing (Downstream)			*22		
	Abandoned Railroad crossing (Upstream)			*23		
	Second Avenue (Downstream)			*24		
	Second Avenue (Upstream)			*27		
	Dam (Downstream)			*27		
	Dam (Upstream)			*132		
	High Street			*134		
	Rensselaer High School Culvert			*21		
	Broadway Avenue			*21		
	Conrail			*22		
	East Street			*27		

Maps are available at: The Town Hall, Greece, New York.

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in foot above ground. *Elevation in feet (NGVD)
			Lawrence Street.....	*27
			Wilson Street.....	*29
			Partition Street.....	*33
			Harrison Street.....	*34
			John Street.....	*35
			Barn Over Creek.....	*36
Maps are available at: The City Hall, Rensselaer, New York.				
New York.....	Troy (City), Rensselaer County (Docket No. FI-5641).	Hudson River.....	State Route 378.....	*24
			Confluence of Wynants Kill.....	*24
			Confluence of Poesten Kill.....	*26
			Congress Street Bridge.....	*27
			Ontario Street Bridge.....	*32
			Route 4 Bridge.....	*35
		Poesten Kill.....	Confluence with Hudson River.....	*26
			Fourth Street.....	*27
			Spring Avenue (Downstream Side).....	*31
			Spring Avenue (Upstream Side).....	*37
			5,600 feet upstream of confluence.....	*100
			6,000 feet upstream of confluence.....	*160
			Dam 1 (Upstream Side).....	*223
			State Highway 66/Rawling Avenue (Upstream Side).....	*224
			Dam 2 (Upstream Side).....	*234
			3,000 feet upstream side of Dam 2.....	*238
			5,000 feet upstream side of Dam 2.....	*243
			8,000 feet upstream side of Dam 2.....	*249
		Wynants Kill.....	Burden Pond Dam (Upstream Side).....	*183
			2,000 feet upstream of Burden Pond Dam.....	*184
			2,200 feet upstream of Burden Pond Dam.....	*220
			3,400 feet upstream of Burden Pond Dam.....	*250
			4,000 feet upstream of Burden Pond Dam.....	*253
			Campbells Avenue (Upstream Side).....	*255
			2,000 feet upstream of Campbells Avenue.....	*267
			5,000 feet upstream of Campbells Avenue.....	*274
			7,000 feet upstream of Campbells Avenue.....	*285
			State Route 405 (Upstream Side).....	*315
			3,000 feet upstream of State Route 405.....	*324
Maps are available at: The City Hall, Troy, New York.				
North Carolina.....	MacClesfield (Town), Edgecomb- County (Docket No. FI-5347).	Bynum Mill Creek.....	State Route 1109—20 feet upstream from center line.....	*76
		Bynum Mill Run.....	At Downstream Limits of Flooding Affecting MacClesfield.....	*79
Maps available at: Town Hall, MacClesfield, Edgecombe County, North Carolina.				
Oklahoma.....	City of Del City, Oklahoma County (FI-5513).	Crutcho Creek Tributary A.....	Approximately 50 feet upstream of S.E. 20th Street.....	*1,192
		Crutcho Creek Tributary B.....	Just downstream of S.E. 29th Street.....	*1,205
			Just downstream of Woodview Drive.....	*1,211
		Crutcho Creek.....	Just Downstream of Sooner Rd.....	*1,171
			Just downstream of Vickie Dr.....	*1,170
			Just downstream of S.E. 15th Street.....	*1,180
		North Canadian River.....	Just downstream of N.E. 10th Street.....	*1,162
			Just upstream of N.E. 4th Street.....	*1,168
		Crooked Oak Creek.....	Just upstream of Reno Ave.....	*1,172
			Grand Boulevard.....	*1,167
		Cherry Creek.....	Just upstream of N.E. 4th St.....	*1,167
			Just upstream of Reno Ave.....	*1,176
			Just upstream of Del Road.....	*1,208
			Just upstream of Royalwood Circle.....	*1,221
		Branch Creek.....	Just upstream of St. Louis-San Francisco Railroad Yard.....	*1,169
			Just upstream of Reno Ave.....	*1,161
Maps available at: City Planner's Office, City Hall, 4517 S.E. 29th Street, Del City, Oklahoma 73115.				

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
Pennsylvania	Carroll (Township), Washington County (Docket No. FI-5397).	Monongahela River	Downstream Corporate Limits	*755
			Upstream Corporate Limits	*760
		Pigeon Creek	Downstream Corporate Limits	*755
			State Route 481 (Upstream)	*756
			Mine Road (Extended)	*762
			Mine Dump Access Road (Extended)	*769
			Legislative Route 62016 (Crossing No. 1)	*787
			Legislative Route 62016 (Crossing No. 2)	*798
			Abandoned Railroad Bridge (Upstream)	*812
			Legislative Route 62016 (Crossing No. 3)	*820
Maps are available at the Township Building, 130 Baird Street, Monongahela, Pennsylvania.				
Pennsylvania	Conestoga (Township), Lancaster County (Docket No. FI-5283).	Susquehanna River	Downstream Corporate Limits; confluence of Pequea Creek	*189
			Upstream Corporate Limits; confluence of Conestoga Creek	*191
		Pequea Creek	Confluence of Susquehanna River, Conrail	*189
			Recreation Area—footbridge	*194
			Approximately 1,100 feet upstream from Fox Hollow Road	*204
			State Route 324	*225
			Loop Road—T413	*240
			Legislative Route 36025, Sandhill Road	*251
			Upstream Corporate Limits	*264
		Conestoga Creek	Conrail	*190
			Weir—Elevation 195.2 feet (downstream)	*207
			Upstream Corporate Limits	*224
Maps are available at the Township Building, Conestoga, Pennsylvania.				
Pennsylvania	Conewago (Township), York County (Docket No. FI-5523).	Little Conewago Creek—Harrisburg	Canal Road State Route 921 Susquehanna Trail	*333
		Baltimore 324 Expressway	3,100 feet upstream of Susquehanna Trail	*335
Maps are available at the Conewago Township Building.				
Pennsylvania	Fairview (Borough), Erie County (Docket No. FI-5525).	Trout Run	Downstream Corporate Limits	*769
			Downstream Lane of U.S. Route 20	*779
			South Garwood Street	*791
			Upstream Corporate Limits	*804
Maps are available at: The Borough Hall, Fairview, Pennsylvania.				
Pennsylvania	Glenfield (Borough), Allegheny County (Docket No. FI-5398).	Ohio River	Downstream Corporate Limits	*718
			Interstate Route 79	*718
			Confluence of Kilbuck Run	*718
			Upstream Corporate Limits	*719
Maps are available at: The Fire Hall, East Beaver Street, Glenfield, Pennsylvania.				
Pennsylvania	Haysville (Borough), Allegheny County (Docket No. FI-5399).	Ohio River	Downstream Corporate Limits	*717
			Confluence of Tributary to Ohio River	*717
			Upstream Corporate Limits	*718
Maps are available at: The residence of the Mayor, 18 River Road, Haysville, Pennsylvania.				
Pennsylvania	Hellam (Township), York County (Docket No. FI-5526).	Susquehanna River	Downstream Corporate Limits	*239
			U.S. Route 30 (Upstream)	*244
			Upstream Corporate Limits	*275
		Kreutz Creek	Downstream Corporate Limits	*254
			Cool Creek Road, Legislative Route 66004 (Upstream)	*269
			Bairds Mill Road, T-773 (Upstream)	*279
			Sticklers School Road T-773 (Upstream)	*284
			Dam 1,300 feet upstream of Sticklers School Road (Upstream)	*289

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground, *Elevation in feet (NGVD)
			Abandoned Railroad (Upstream) .....	*303
			Abandoned Railroad 1,200 feet downstream of Ducktown Road (Downstream) .....	*308
			Abandoned Railroad 1,200 feet downstream of Ducktown Road (Up- stream) .....	*314
			Ducktown Road (Upstream) .....	*318
			Abandoned Railroad 1,400 feet downstream of Hillview Road (Down- stream) .....	*320
			Abandoned Railroad 1,400 feet downstream of Hillview Road (Up- stream) .....	*327
			Abandoned Railroad 800 feet upstream of Hillview Road (Upstream) ..	*331
			Abandoned Railroad 225 feet downstream of Hallam Borough Corpo- rate Limits (Downstream) .....	*333
			Abandoned Railroad 225 feet downstream of Hallam Borough Corpo- rate Limits (Upstream) .....	*338
			Abandoned Railroad 680 feet upstream of Hallam Borough Corporate Limits (Downstream) .....	*347
			Abandoned Railroad 680 feet upstream of Hallam Borough Corporate Limits (Upstream) .....	*356
			Valley Access Road (Upstream) .....	*360
			Liephard Mill Road (Downstream) .....	*379
			Liephard Mill Road (Upstream) .....	*384
			Orr Valley (Upstream) .....	*400
			Upstream Corporate Limits .....	*424
	Tributary D .....		Downstream Corporate Limits .....	*382
			U.S. Route 30 (Downstream) .....	*390
			U.S. Route 30 (Upstream) .....	*398
			Horn Road, F779 (Upstream) .....	*403
	Tributary E .....		Downstream Corporate Limits .....	*349
			Frysview Road .....	*352
			Confluence of Tributary E-2 .....	*357
			Lincoln Highway (Upstream) .....	*370
			Old Church Lane (Upstream) .....	*301
			Kreutz Creek Road (Downstream) .....	*382
			Kreutz Creek Road (Upstream) .....	*388
	Tributary E-1 .....		Abandoned Railroad Bridge 100 feet downstream of Frysview Road (Downstream) .....	*354
			Abandoned Railroad Bridge 100 feet downstream of Frysview Road (Upstream) .....	*363
			Harm Road .....	*364
			Campbell Road (Upstream) .....	*371
			Upstream Corporate Limits .....	*375
	Tributary E-2 .....		Confluence with Tributary E .....	*357
			Footbridge .....	*361
			Irrigation Ditch .....	*363
			Campbell Road (Downstream) .....	*396
			Campbell Road (Upstream) .....	*402
			Lincoln Highway .....	*402
			Shoehouse Road (Upstream) .....	*405
Maps are available at: The Hellam Township Building.				
Pennsylvania .....	Manor (Township), Lancaster County (Docket No. FI-5527).	Susquehanna River .....	Confluence of Conestoga Creek .....	*190
			Safe Harbor Dam (Upstream) .....	*227
			Corporate Limits .....	*239
		Conestoga Creek .....	Conrail .....	*190
			Confluence of Little Conestoga Creek .....	*204
			Slackwater Road .....	*218
			Corporate Limits .....	*227
		Little Conestoga Creek .....	Confluence with Conestoga Creek .....	*204
			Walnut Hill Road .....	*213
			Owl Bridge Road .....	*230
			Letart Road .....	*239
			Blue Rock Road .....	*250
			Weir 950 feet upstream of Route 36008 (Upstream) .....	*257
			Confluence of Tributary A .....	*273
			Mill Driveway (Downstream) .....	*284
			Columbia Avenue .....	*291
		Tributary A .....	Confluence with Little Conestoga Creek .....	*273
			Confluence of Tributary A1 .....	*275
			Farm Road Culvert .....	*309
			A. Cork Property Number One Culvert .....	*332
			Kready Road .....	*348
			Limit of detailed study 1,840 feet upstream of Kready Road .....	*368
		Tributary A1 .....	Confluence with Tributary A .....	*275
			Farm Road Culvert .....	*291
			2,030 feet upstream of Culvert .....	*325
		West Branch Little Conestoga Creek.	Confluence with Little Conestoga Creek .....	*215
			Owl Bridge Road (Downstream) .....	*243
			Letart Road .....	*263
			Confluence of Tributary A .....	*268
			Confluence of Tributary B .....	*275
			Confluence of Tributary C .....	*294
			Blue Rock Road .....	*303
			Charlestown Road .....	*321

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
			Habecker Church Road	*335
			Hershey Mill Road (Downstream)	*367
			Hershey Mill Road (Upstream)	*375
			Columbia Pike	*382
Maps are available at: The Township Building, 26 Millersville Road, 9:00 a.m. to 4:00 p.m., Manor, Pennsylvania.				
Pennsylvania	Mount Holly Springs (Borough), Cumberland County (Docket No. FI-5529).	Mountain Creek	Conrail (Downstream Side)	*540
			Conrail (Upstream Side)	*544
			Mill Street (Upstream Side)	*547
			Pine Street (Upstream Side)	*562
			Mountain Street (Downstream Side)	*565
			State Route 34 (Downstream Side)	*576
			Dam No. 1 (Upstream Side)	*578
			Dam No. 2 (Downstream Side)	*588
			Dam No. 2 (Upstream Side)	*597
			Upstream Corporate Limits	*601
Maps are available at: The Borough Hall, Mount Holly Springs, Pennsylvania.				
Pennsylvania	New Eagle (Borough), Washington County (Docket No. FI-5402).	Monongahela River	Downstream Corporate Limits	*753
			Upstream Corporate Limits	*754
Maps are available at: The Borough Building, 157 Main Street, New Eagle, Pennsylvania.				
Pennsylvania	Paxtang (Borough), Dauphin County (Docket No. FI-5530).	Parkway Creek	Downstream Corporate Limits	*373
			Derry Street (Upstream)	*373
			Brisban Street (Upstream)	*373
			Upstream Corporate Limits	*389
		Spring Creek	Downstream Corporate Limits	*363
			Lower "Ganfle" Bridge	*364
			Upstream Corporate Limits	*365
Maps are available at: The Municipal Building, Paxtang, Pennsylvania.				
Pennsylvania	Prospect Park (Borough), Delaware County (Docket No. 5709).	Stony Creek	Downstream Corporate Limits	*60
			Upstream side of Dam north of 13th Street	*69
			Upstream Corporate Limits	*72
		Derby Creek	Downstream Corporate Limits	*10
			Upstream Corporate Limits	*10
Maps are available at: The Borough Office, 720 Maryland Avenue, Prospect Park, Pennsylvania.				
Pennsylvania	Rutledge (Borough), Delaware County (Docket No. 5710).	Stony Creek	Downstream Corporate Limits at Melrose Terrace	*98
			Upstream Corporate Limits at Morton Avenue	*114
Maps are available at: The residence of the Borough Secretary, 200 Rutledge Avenue, Rutledge, Pennsylvania.				
Pennsylvania	Salem (Township), Luzern County (Docket No. FI-4783).	Susquehanna River	Downstream Corporate Limits	*500
			Pennsylvania Route 239	*522
			Upstream Corporate Limits	*522
		Mud Swamp Creek	Downstream Corporate Limits	*588
			Holly Drive	*591
			Bombay Lane	*610
			Sholtz Road (Upstream)	*640
		Salem Creek	Conrail (Downstream face of culvert)	*513
			U.S. Route 11 (Downstream)	*515
			U.S. Route 11 (Upstream)	*529
			Legislative Route 40029 (Upstream)	*626
			Sholtz Road	*637
			Hollen Road (Upstream)	*655
		Walker Run	Church Street (Upstream)	*514
			Conrail (Upstream)	*528
			U.S. Route 11	*532
			Private Bridge (Upstream)	*644
			Township Route 417 (Upstream)	*648
			Thomas Road	*656
			Private Bridge	*658
			Private Bridge (Upstream)	*661
			Thomas Road	*670
		Tributary No. 17 to Susquehanna River	Conrail Downstream	*517
			Conrail Upstream	*521
			U.S. Route 11 (Downstream)	*522
			U.S. Route 11 (Upstream)	*531
			(Downstream Crossing) Legislative Route 40028 Downstream	*541
			(Downstream Crossing) Legislative Route 40028 Upstream	*547
			(Upstream Crossing) Legislative Route 40028	*583
			Private Bridge	*639
Maps are available at: The Municipal Building, Salem, Pennsylvania.				
Pennsylvania	Shaler (Township), Allegheny County (Docket No. FI-5531).	Allegheny River	Downstream Corporate Limits	*734
			Upstream Corporate Limits	*735
		Pine Creek	Downstream Corporate Limits	*751
			Shopping Center Bridge	*760

## Final Base (100-year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
Pennsylvania	West Hanover (Township), Dauphin County (Docket No. FI-5515).	Beaver Creek	Pennview Street.....	*764
			Maple Avenue.....	*783
			Spencer Lane.....	*792
			Butler Plank Road.....	*803
			Burchfield Road.....	*828
			Upstream Corporate Limits.....	*839
			Girtys Run.....	*794
			Downstream Corporate Limits.....	*804
			Evergreen Road.....	*829
			Dravo Street Extension.....	*840
			Upstream Corporate Limits.....	*781
			Little Pine Creek West.....	*818
			Downstream Corporate Limits.....	*880
			Private Drive.....	*937
			Wetzel Road.....	*977
			Clair Street.....	*757
			Upstream Corporate Limits.....	*757
			Little Pine Creek East.....	*780
			Confluence with Pine Creek.....	*796
			Kaye Street.....	*796
			Saxonburg Boulevard.....	*796
			Private Drive.....	*796
			Upstream Corporate Limits.....	*796
Maps are available at: The Shaler Municipal Building, Wetzel Road, Glenshaw, Pennsylvania.				
Pennsylvania	West Hanover (Township), Dauphin County (Docket No. FI-5515).	Beaver Creek	State Route 39 (Upstream Side).....	*432
			Piketown Road (Upstream Side).....	*427
			Blueridge Avenue (Upstream Side).....	*415
			Jonestown Road.....	*402
			Devonshire Heights Road.....	*388
			Tributary A to Beaver Creek.....	*460
			5,200 feet upstream of confluence with Beaver Creek.....	*446
			2,900 feet upstream of confluence with Beaver Creek.....	*434
			800 feet upstream of confluence with Beaver Creek.....	*572
			Fishing Creek.....	*547
			Fishing Creek Elementary School Road (Upstream Side).....	*530
			State Route 443 (Upstream Side).....	*406
			Downstream Corporate Limits.....	*404
Pennsylvania	West Hanover (Township), Dauphin County (Docket No. FI-5515).	Manada Creek	Upstream Corporate Limits.....	*576
			Downstream Corporate Limits.....	*559
			Tnbutary to Manada Creek.....	
Maps are available at: The Municipal Building, West Hanover, Pennsylvania.				
South Carolina	Town of Pine Ridge, Lexington County (FI-5561).	Congaree Creek	Northeastern Corporate Limits.....	*140
			Northwestern Corporate Limits (approximately 2500 feet downstream of Southern Railway).....	*150
			Big Branch.....	*183
			First Creek.....	*174
			Dogwood Road.....	
Maps available at: Pine Ridge Town Hall, 1015 Fish Hatchery Road, West Columbia, South Carolina 29169.				
Tennessee	City of Charleston, Bradley County (FI-5516).	Hiwassee River	Just downstream of US Highway 11.....	*698
			Just downstream of County Road 4311.....	*699
			Just downstream of Cass Street.....	*698
			Unnamed Tributary to Hiwassee River.....	
			Just downstream of Wool Street.....	*698
Tennessee	City of Charleston, Bradley County (FI-5516).	Unamed Tributary to Hiwassee River.	Just downstream of Market Street.....	*698
Maps available at: City Manager's Office, City Hall, Charleston, Tennessee 37310.				
Virginia	Remington (Town), Fauquier County (Docket No. FI-5535).	Tinpot Run	Route 651 Bridge.....	*277
			Route 655 Bridge.....	*277
			Upstream Corporate Limits.....	*277
Maps are available at: The Municipal Building, Remington, Virginia.				
West Virginia	Shepherdstown (Town), Jefferson County (Docket No. FI-5537).	Potomac River	Upstream Corporate Limits.....	*323
			Downstream Corporate Limits.....	*322
			Confluence with Potomac River.....	*323
			Town Run.....	
			From the centerline of East High Street to 150' North.....	#1
			From the centerline of East High Street South 600'.....	#2
			From 60' south of the intersection of South Princess Street and East German Street to 180' south of the intersection.....	#1
Maps are available at: The Town Hall, Shepherdstown, West Virginia.				

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended (42 U.S.C. 4001-4128); Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator 44 FR 20963.)

Issued: October 11, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-33982 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M



# Proposed Rules

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## DEPARTMENT OF AGRICULTURE

### Agricultural Marketing Service

#### 7 CFR Part 982

#### Filberts Grown in Oregon and Washington; Proposed Free and Restricted Percentages for the 1979-80 Marketing Policy Year

AGENCY: Agricultural Marketing Service, USDA.

ACTION: Proposed rule.

**SUMMARY:** This proposal would establish free and restricted percentages of 35 percent and 65 percent, respectively, for inshell filberts for the marketing policy year beginning August 1, 1979. The action is taken under the marketing order for filberts grown in Oregon and Washington to promote orderly marketing conditions.

**DATES:** Written comments to this proposal must be received by November 21, 1979.

**ADDRESSES:** Written comments should be submitted in duplicate to the Hearing Clerk, Room 1077, South Building, U.S. Department of Agriculture, Washington, D.C. 20250. All written submissions will be made available for public inspection at the office of the Hearing Clerk during regular business hours.

**FOR FURTHER INFORMATION CONTACT:** William J. Higgins, (202) 447-5053.

**SUPPLEMENTARY INFORMATION:** This proposal was recommended by the Filbert Control Board. The Board is established under the marketing agreement, as amended, and Order No. 982, as amended (7 CFR 982), regulating the handling of filberts grown in Oregon and Washington. The amended marketing agreement and order are effective under the Agriculture Marketing Agreement Act of 1937, as amended (7 U.S.C. 601-674).

The proposed percentages are based upon the following estimates by the Filbert Control Board for the 1979-80 marketing policy year:

<b>Inshell supply:</b>	
(1) Total production	11,550
(2) Less substandard, etc.	1,040
(3) Merchantable production	10,510
(4) Carryover Aug. 1, 1979, of merchantable filberts	63
(5) Supply subject to regulation [Item 3 plus Item 4]	10,573
<b>Inshell requirements:</b>	
(6) Trade demand	5,000
(7) Carryover July 31, 1980	400
(8) Total	5,400
(9) Less carryover Aug. 1, 1979, not subject to 1979-80 regulation	1,687
(10) Inshell requirements	3,713
<b>Percentages:</b>	
(11) Free percentage [Item 10 divided by Item 3]	35
(12) Restricted percentage [100 percent minus 35 pct]	65

The free percentage prescribes that portion of the merchantable supply subject to regulation which may be handled as inshell filberts. The restricted percentage prescribes that portion which must be withheld from such handling. Restricted filberts may be shelled (for domestic or foreign consumption), exported, or disposed of in outlets determined by the Filbert Control Board to be noncompetitive with normal market outlets for inshell filberts.

This proposal has been reviewed under USDA criteria for implementing Executive Order 12044. It is being published with less than a 60-day comment period because the final regulation would apply to 1979 crop filberts, and handlers need to know as soon as possible what volume regulations may apply to the handling of this crop. A determination has been made that this action should not be classified "significant". A Draft Impact Analysis is available from William J. Higgins, (202) 447-5053.

The proposal is as follows:  
Section 982.229 would be added to read:

§ 982.229 Free and restricted percentages—1979-80 marketing policy year.

The free and restricted percentages for merchantable filberts for the 1979-80 marketing policy year shall be 35 percent and 65 percent, respectively.

Dated: October 31, 1979.  
Charles R. Brader,  
Director, Fruit and Vegetable Division.

[FR Doc. 79-34144 Filed 11-2-79; 8:45 am]

BILLING CODE 3410-02-M

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 70-WE-44-AD]

#### Airworthiness Directives; General Dynamics Models 240, 340, 440 Series Airplanes

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Notice of proposed rulemaking.

**SUMMARY:** This notice proposes to supersede an existing Airworthiness Directive (AD) 75-06-06 to require repetitive inspections and replacements of the cabin window, cockpit windshields and direct vision windows and replacement of the cockpit sliding window after a reduced time in service, (life limited), with a new improved cockpit sliding window on General Dynamics Models 240, 340, 440, T-29 and C-131 aircraft converted to a civil configuration.

The proposed AD is needed because of window failures reported since the issuance of AD 75-06-06.

**DATES:** Comments must be received on or before January 7, 1980.

**ADDRESSES:** Send comment on the proposal to: Department of Transportation, Federal Aviation Administration, Western Region, Attention: Regional Counsel, Airworthiness Rule Docket, P.O. Box 92007, Worldway Postal Center, Los Angeles, California 90009.

The applicable service information may be obtained from: General Dynamics, Post Office Box 80677, San Diego, California 92138, Attention: Mr. Larry Hayes, Manager, Project Support, Convair Division.

**FOR FURTHER INFORMATION CONTACT:** Jerry Presba, Executive Secretary Airworthiness Directive Review Board, Federal Aviation Administration, Western Region, P.O. Box 92007, World Way Postal Center, Los Angeles, California 90009.

**SUPPLEMENTARY INFORMATION:** Interested persons are invited to participate in the making of the proposed rule by submitting such written data, views, or arguments as they may desire. Interested persons are also invited to comment on the economic, environmental and energy

impact that might result because of adoption of the proposed rule. Communications should identify the regulatory docket number and be submitted in duplicate to the address specified above. All communications received on or before the closing date for comments will be considered by the Administrator before taking action on the proposed rule. The proposal contained in this notice may be changed in light of comments received. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report summarizing each FAA-public contact, concerned with the substance of the proposed AD, will be filed in the Rules Docket.

This notice proposes to supersede Amendment 39-2125 (40 FR 11549), AD 75-06-06, which currently requires repetitive inspections and replacement of the cockpit sliding windows after 12 years on General Dynamics Models 240, 340, 440, T-29 and C-131 aircraft converted to a civil configuration.

After issuing Amendment 39-2125, the Federal Aviation Administration (FAA) has received reports of 2 failures of the cockpit sliding window and 1 failure of a cabin window. These failures all resulted in the loss of cabin pressure.

The manufacturer has developed an improved cockpit sliding window that is not susceptible to explosive decompression failure.

Therefore, the FAA is considering superseding of AD 75-06-06 with a new AD requiring repetitive inspection or replacement of the cabin windows, direct vision windows and pilots' windshields and replacement of the cockpit sliding window after a five year time in service with the new improved cockpit sliding window on General Dynamics Model 240, 340, 440, T-29 and C-131 aircraft converted to a civil configuration.

#### Proposed Amendment

Accordingly, the Federal Aviation Administration proposes to amend § 39.13 of Part 39 of the Federal Aviation Regulations (14 CFR 39.13) by adding the following new Airworthiness Directive:

**General Dynamics:** Applies to Model 240, T-29B, 340, 440, and C-131E and all such model airplanes converted to turbopropeller power in accordance with STC SA1054WE, known as Model 600, and STC's SA4-1100 and SA1096WE, known as Model 580 and Model 640, respectively, certificated in all categories.

Compliance required as indicated.

To detect incipient failure of the pilots' windshield, direct vision window, sliding windows, P/N 340-3110307-7 or -8, and cabin

windows and to provide for a modification to prevent door collapse on certain airplanes, accomplish the following:

(a) For sliding windows, P/N 340-3110307-7 and -8, which are twelve years or older or five years or older after June 30, 1980, prior to further pressurized flight replace the window with a sliding window P/N 340-3110307-7, -8, -9, or -10. The use of the new redesigned sliding windows, P/N 340-3110307-9 and -10, eliminates the inspection requirements of this AD on the sliding window.

(b) If an airplane is to be operated with damage to the sliding windows, pilots' windshields, direct vision windows or cabin windows exceeding the limits specified in the referenced applicable service bulletins specified in paragraph (c) or with sliding windows, P/N 340-3110307-7, or -8, which are five years old or older after June 30, 1980, or twelve years old or older as of the effective date of this AD, prior to further flight, install a placard in plain view of the flight crew stating: "Pressurized flight prohibited."

The placard may be removed when the window replacement is accomplished.

(c) For those sliding windows, P/N 340-3110307-7 and -8, in airplanes used in pressurized operations:

Within the next 20 hours' time in service after the effective date of this AD, unless already accomplished within the last 80 hours' time in service and, thereafter, at intervals not to exceed 100 hours' time in service from the last inspection, inspect windows per paragraph 2.D. (4) under the "Sliding Windows" Section, page 47 of General Dynamics Service Bulletin 640 (34OD) No. 53-5A, dated September 23, 1971, or page 48 of Service Bulletin 600 (24OD) No. 53-4A, dated September 27, 1971.

(d) For those sliding windows P/N 340-3110307-7 and -8 that have been in storage or installed on airplanes which have been in storage, or installed on airplanes operated unpressurized, which, after the effective date of this AD, are to be used in pressurized operation:

(1) Accomplish inspection described in paragraph (c), above, within 20 hours' time in service after the effective date of this AD, unless already accomplished within the last 55 hours' time in service, and thereafter, at intervals not to exceed 75 hours' time in service, or each 30 days, whichever comes first after the airplane is operated in pressurized flight.

(2) After 450 hours' time in service or 180 days, whichever comes first, after the airplane is operated in pressurized flight, the interval inspections of paragraph (c), above, must be accomplished.

(e) For those pilots' windshields with over 12 years time in service, within the next 20 hours' time in service from the effective date of this AD, unless accomplished within the last 80 hours' time in service and, thereafter, at intervals not to exceed 100 hours' time in service, inspect the pilots' windshields per paragraph 2.D.4 under the Pilots' Windshield Section, page 39 of General Dynamics Service Bulletin 600 (24OD) No. 53-4B, dated August 30, 1979, or page 38 of General Dynamics Service Bulletin 640 (34OD) No. 53-5B, dated August 30, 1979.

(f) For those direct vision windows with over 12 years time in service, within the next 20 hours' time in service from the effective date of this AD, unless accomplished within the last 80 hours' time in service and, thereafter, at intervals not to exceed 100 hours' time in service, inspect the direct vision windows per paragraph 2.D.4 under the DV Windows Section, page 41 of General Dynamics Service Bulletin 600 (24OD) No. 53-4B, dated August 30, 1979, or page 40 of General Dynamics Service Bulletin 640 (34OD) No. 53-5B, dated August 30, 1979.

(g) For those cabin windows with over 12 years time in service, within the next 20 hours' time in service from the effective date of this AD, unless accomplished within the last 80 hours' time in service and, thereafter, at intervals not to exceed 100 hours' time in service, inspect the cabin windows per Paragraph 2.D.(4) under the "Cabin Windows" Section, Page 49 of General Dynamics Service Bulletin 600 (24OD) No. 53-4B, dated August 30, 1979, or Page 49 of General Dynamics Service Bulletin 640 (24OD) No. 53-5B, dated August 30, 1979.

(h) On Models 340, 440, 580 and 640: As of the effective date of this AD, a condition for airworthiness certification shall be modification of the cockpit door in accordance with General Dynamics Service Bulletin 640 (34OD) No. 25-9, dated November 16, 1970.

(i) Special flight permits may be issued in accordance with FAR 21.197 and 21.199 to operate unpressurized airplanes to a base for the accomplishment of inspections required by this AD.

(j) Alternative inspections, modifications or other actions which provide an equivalent level of safety may be used when approved by the Chief, Aircraft Engineering Division, FAA Western Region.

[Secs. 313(a), 601, and 603, Federal Aviation Act of 1958, as amended (49 U.S.C. 1354(a), 1421, and 1423); Sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)); and 14 CFR 11.85]

**Note.**—The Federal Aviation Administration has determined that this document is not significant in accordance with the criteria required by Executive Order 12044 and set forth in Department of Transportation Guidelines.

Issued in Los Angeles, California on October 23, 1979.

William R. Krieger,

Acting Director, FAA Western Region.

[FR Doc. 79-34141 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

#### 14 CFR Part 71

[Airspace Docket No. 79-ASSW-45]

**Proposed Alteration of Control Zone and Transition Area: Victoria, Tex.**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of Proposed Rulemaking.

**SUMMARY:** The nature of the action being taken is to propose alteration of the control zone and transition area at Victoria, Tex. The intended effect of the proposed action is to provide additional controlled airspace for aircraft executing new instrument approach procedures, and to conform the remaining controlled airspace to the existing instrument approach procedures to the Victoria Regional Airport. The circumstances which created the need for the action are the proposed establishment of a nonfederal nondirectional radio beacon (NDB) on the airport, new instrument approaches to Runways 17 and 30R, and reevaluation of the existing controlled airspace.

**DATES:** Comments must be received by December 5, 1979.

**ADDRESSES:** Send comments on the proposal to: Chief, Airspace and Procedures Branch, Air Traffic Division, Southwest Region, Federal Aviation Administration, P.O. Box 1689, Fort Worth, Texas 76101.

The official docket may be examined at the following location: Office of the Regional Counsel, Southwest Region, Federal Aviation Administration, 4400 Blue Mound Road, Fort Worth, Texas.

An informal docket may be examined at the Office of the Chief, Airspace and Procedures Branch, Air Traffic Division.

**FOR FURTHER INFORMATION CONTACT:** Manuel R. Hugonnett, Airspace and Procedures Branch, ASW-536, Air Traffic Division, Southwest Region, Federal Aviation Administration, P.O. Box 1689, Fort Worth, Texas 76101; telephone (817) 624-4911, extension 302.

**SUPPLEMENTARY INFORMATION:** Subpart F 71.171 (44 FR 353) and Subpart G 71.181 (44 FR 442) of FAR Part 71, respectively, contain the description of control zones and transition areas designated to provide controlled airspace for the benefit of aircraft conducting Instrument Flight Rules (IFR) activity. Alteration of the control zone and transition area at Victoria, Tex., will necessitate an amendment to these subparts.

#### Comments Invited

Interested persons may submit such written data, views, or arguments as they may desire. Communications should be submitted in triplicate to Chief, Airspace and Procedures Branch, Air Traffic Division, Southwest Region, Federal Aviation Administration, P.O. Box 1689, Fort Worth, Texas 76101. All communications received by December 5, 1979, will be considered before action is taken on the proposed

amendment. No public hearing is contemplated at this time, but arrangements for informal conferences with Federal Aviation Administration officials may be made by contacting the Chief, Airspace and Procedures Branch. Any data, views, or arguments presented during such conferences must also be submitted in writing in accordance with this notice in order to become part of the record for consideration. The proposal contained in this notice may be changed in the light of comments received. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons.

#### Availability of NPRM

Any person may obtain a copy of this notice of proposed rule making (NPRM) by submitting a request to the Chief, Airspace and Procedures Branch, Air Traffic Division, Southwest Region, Federal Aviation Administration, P.O. Box 1689, Fort Worth, Texas 76101, or by calling (817) 624-4911, extension 302. Communications must identify the notice number of this NPRM. Persons interested in being placed on a mailing list for future NPRMs should contact the office listed above.

#### The Proposal

The FAA is considering an amendment to Subparts F and G of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) to alter the control zone and transition area at Victoria, Tex. The FAA believes this action will enhance IFR operations at the Victoria Regional Airport by providing additional controlled airspace for aircraft executing proposed instrument approach procedures using the proposed NDB to Runways 17 and 30R, and by redefining the existing controlled airspace to conform to the existing approach procedures. Subparts F and G of Part 71 were republished in the Federal Register on January 2, 1979 (44 FR 353 and 44 FR 442, respectively).

#### The Proposed Amendment

Accordingly, pursuant to the authority delegated to me, the FAA proposes to amend 71.171 of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) as republished (44 FR 353) by altering the Victoria, Tex., control zone to read as follows:

#### Victoria, Tex.

Within a 5-mile radius of the Victoria Regional Airport, Victoria, Tex. (latitude 28°51'06.9" N., longitude 96°55'03.7" W.) and within 3.5 miles each side of the Victoria VOR 312° radial extending from the 5-mile radius zone to 10.5 miles northwest of the

VOR; within 3 miles each side of the NDB (latitude 28°50'39" N., longitude 96°54'26" W.) 355° and 160° bearings extending from the 5-mile radius zone to 8.5 miles from the NDB.

Additionally, the FAA proposes to amend 71.181 of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) as republished (44 FR 442) by altering the Victoria, Tex., transition area to read as follows:

#### Victoria, Tex.

That airspace extending upward from 700 feet above the surface within a 6.5-mile radius of the Victoria Regional Airport, Victoria, Tex. (latitude 28°51'06.9" N., longitude 96°55'03.7" W.) and within 3.5 miles each side of the Victoria VOR 312° radial extending from the 6.5-mile radius area to 11.5 miles northwest of the VOR; within 3 miles each side of the NDB (latitude 28°50'39" N., longitude 96°54'26" W.) 355° and 160° bearings extending from the 6.5-mile radius to 8.5 miles from the NDB.

(Sec. 307(a), Federal Aviation Act of 1958 (49 U.S.C. 1348(a); and Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)))

The FAA has determined that this document involves a proposed regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since this regulatory action involves an established body of technical requirements for which frequent and routine amendments are necessary to keep them operationally current and promote safe flight operations, the anticipated impact is so minimal that this action does not warrant preparation of a regulatory evaluation and a comment period of less than 45 days is appropriate.

Issued in Fort Worth, Texas on October 23, 1979.

Paul J. Baker,

*Acting Director, Southwest Region.*

[FR Doc. 79-33965 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

#### 14 CFR Part 71

[Airspace Docket No. 79-RM-27]

#### Establishment of Transition Areas

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of Proposed Rulemaking.

**SUMMARY:** This Notice of Proposed Rulemaking (NPRM) proposes to establish a 700' and 1,200' transition area at Grafton, North Dakota to provide controlled airspace for aircraft executing the new NDB runway 35 standard instrument approach procedure developed for the Grafton

Municipal Airport, Grafton, North Dakota.

**DATES:** Comments must be received on or before December 12, 1979.

**ADDRESS:** Send comments on the proposal to: Chief, Air Traffic Division, Attn: ARM-500, Federal Aviation Administration, 10455 East 25th Avenue, Aurora, Colorado 80010.

A public docket will be available for examination by interested persons in the office of the Regional Counsel, Federal Aviation Administration, 10455 East 25th Avenue, Aurora, Colorado 80010.

**FOR FURTHER INFORMATION CONTACT:** Pruett B. Helm, Airspace and Procedures Specialist, Operations, Procedures and Airspace Branch (ARM-530), Air Traffic Division, Federal Aviation Administration, Rocky Mountain Region, 10455 East 25th Avenue, Aurora, Colorado 80010; telephone (303) 837-3937.

#### **SUPPLEMENTARY INFORMATION:** **Comments Invited**

Interested persons may participate in the proposed rulemaking by submitting such written data, views, or arguments as they may desire. Communications should be submitted in triplicate to the Chief, Air Traffic Division, Federal Aviation Administration, 10455 East 25th Avenue, Aurora, Colorado 80010. All communications received will be considered before action is taken on the proposed amendment. No public hearing is contemplated at this time, but arrangements for informal conferences with Federal Aviation Administration officials may be made by contacting the Regional Air Traffic Division Chief. Any data, views, or arguments presented during such conferences must also be submitted in writing in accordance with this notice in order to become part of the record for consideration. The proposal contained in this notice may be changed in the light of comments received.

#### **Availability of NPRM**

Any person may obtain a copy of this Notice of Proposed Rulemaking (NPRM) by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Information Center, APA-430, 800 Independence Avenue, SW., Washington, D.C. 20591, or by calling (202) 426-8058. Communications must identify the notice number of this NPRM. Persons interested in being placed on a mailing list for future NPRM's should also request a copy of Advisory Circular No. 11-2 which describes the application procedure.

#### **The Proposal**

The Federal Aviation Administration (FAA) is considering an amendment to subpart G of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) to establish a 700' and 1,200' transition area at Grafton, North Dakota. This proposal is necessary to provide controlled airspace for aircraft executing the new NDB standard instrument approach procedure developed for the Grafton Municipal Airport, Grafton, North Dakota. It is proposed to make the establishment of the transition areas coincident with the effective data of the new standard instrument approach. Accordingly, the FAA proposes to amend subpart G of Part 71 of the Federal Aviation Regulations (14 CFR Part 71) as follows:

By amending 71.181 so as to establish the following transition areas to read:

Grafton, N. Dak.

That airspace extending upward from 700' above the surface within a 6.5 mile radius of the Grafton Municipal Airport, Grafton, North Dakota (latitude 48°24'30" N; longitude 97°22'00" W.) and within 3 miles each side of the 164° true bearing from the Grafton NDB (latitude 48°24'24" N., longitude 97°22'17" W.) extending from the 6.5 mile radius area to 8.5 miles southeast of the Grafton NDB, and that airspace extending upward from 1,200' above the surface within 5 miles each side of the 200° bearing from the Pembina, North Dakota VORTAC to the Grafton NDB within the State of North Dakota.

#### **Drafting Information**

The principal authors of this document are Pruett B. Helm, Air Traffic Division, and Daniel J. Peterson, office of the Regional Counsel, Rocky Mountain Region.

This amendment is proposed under authority of Section 307(a) of the Federal Aviation Act of 1958, as amended (49 U.S.C. 1348(a)), and of Section 6(c) of the Department of Transportation Act (49 U.S.C. 1655(c)).

**Note.**—The FAA has determined that this document involves a proposed regulation which is not significant under Executive Order 12044, as implemented by DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). Since this regulatory action involves an established body of technical requirements for which frequent and routine amendments are necessary to keep them operationally current and promote safe flight operations, the anticipated impact is so minimal that this action does not warrant preparation of a regulatory evaluation, and a comment period of less than 45 days is appropriate.

Issued in Aurora, Colorado on October 25, 1979.

M. M. Martin,

Director, Rocky Mountain Region.

[FR Doc. 79-33986 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M

#### **FEDERAL TRADE COMMISSION**

##### **16 CFR Part 13**

[File No. 792 3260]

#### **Shell Oil Co.; Consent Agreement With Analysis To Aid Public Comment**

**AGENCY:** Federal Trade Commission.

**ACTION:** Consent Agreement.

**SUMMARY:** In settlement of alleged violations of federal law prohibiting unfair acts and practices and unfair methods of competition, this consent order, accepted subject to final Commission approval, among other things, would require a Houston, Texas oil company to cease failing to terminate the liability of a credit card holder for any unauthorized use of the card, after being properly notified by the card holder that third-party use was no longer authorized.

**DATE:** Comments must be received on or before January 4, 1980.

**ADDRESS:** Comments should be directed to: Office of the Secretary, Federal Trade Commission, 6th St. and Pennsylvania Ave., N.W., Washington, D.C. 20580.

**FOR FURTHER INFORMATION CONTACT:** Juereta P. Smith, Director, 5R, Dallas Regional Office, Federal Trade Commission, 2001 Bryan St., Suite 2605, Dallas, Texas 75201. (214) 729-0032.

**SUPPLEMENTARY INFORMATION:** Pursuant to Section 6(f) of the Federal Trade Commission Act, 38 Stat. 721, 15 U.S.C. 46 and § 2.34 of the Commission's Rules of Practice (16 CFR 2.34), notice is hereby given that the following consent agreement containing a consent order to cease and desist and an explanation thereof, having been filed with and accepted, subject to final approval, by the Commission, has been placed on the public record for a period of sixty (60) days. Public comment is invited. Such comments or views will be considered by the Commission and will be available for inspection and copying at its principal office in accordance with § 4.9(b)(14) of the Commission's Rules of Practice (16 CFR 4.9(b)(14)).

File No. 792 3260

In the Matter of Shell Oil Company, a corporation, Agreement Containing Consent Order to Cease and Desist.

The Federal Trade Commission having initiated an investigation of certain acts and practices of Shell Oil Company, a corporation, and it appearing that Shell Oil Company, a corporation, hereinafter sometimes referred to as proposed respondent, is willing to enter into an agreement containing an order to cease and desist from the use of the acts and practices being investigated.

It is hereby agreed by and between Shell Oil Company, by its duly authorized officer, its attorney, and counsel for the Federal Trade Commission that:

1. Proposed respondent Shell Oil Company is a corporation organized, existing and doing business under and by virtue of the laws of the State of Delaware, with its office and principal place of business located at One Shell Plaza, in the city of Houston, State of Texas, 77001.

2. Proposed respondent admits all the jurisdictional facts set forth in the draft of complaint here attached.

3. Proposed respondent waives:

(a) Any further procedural steps;

(b) The requirement that the Commission's decision contain a statement of findings of fact and conclusions of law; and

(c) All rights to seek judicial review or otherwise to challenge or contest the validity of the order entered pursuant to this agreement.

4. This agreement shall not become part of the public record of the proceeding unless and until it is accepted by the Commission. If this agreement is accepted by the Commission it, together with the draft of complaint contemplated thereby and related material pursuant to Rule 2.34, will be placed on the public record for a period of sixty (60) days and information in respect thereto publicly released. The Commission thereafter may either withdraw its acceptance of this agreement and so notify the proposed respondent, in which event it will take such action as it may consider appropriate, or issue and serve its complaint (in such form as the circumstances may require) and decision, in disposition of the proceeding.

5. This agreement is for settlement purposes only and does not constitute an admission by proposed respondent that the law has been violated as alleged in the draft of complaint here attached.

6. This agreement contemplates that, if it is accepted by the Commission, and if such acceptance is not subsequently withdrawn by the Commission pursuant to the provisions of § 2.34 of the

Commission's Rules, the Commission may, without further notice to proposed respondent, (1) issue its complaint corresponding in form and substance with the draft of complaint here attached and its decision containing the following order to cease and desist in disposition of the proceeding and (2) make information public in respect thereto. When so entered, the order to cease and desist shall have the same force and effect and may be altered, modified or set aside in the same manner and within the same time provided by statute for other orders. The order shall become final upon service. Delivery by the U.S. Postal Service of the complaint and decision containing the agreed-to order to proposed respondent's address as stated in this agreement shall constitute service. Proposed respondent waives any right it may have to any other manner of service. The complaint may be used in construing the terms of the order, and no agreement, understanding, representation, or interpretation not contained in the order or the agreement may be used to vary or contradict the terms of the order.

7. Proposed respondent has read the proposed complaint and order contemplated hereby. It understands that once the order has been issued, it will be required to file one or more compliance reports showing that it has fully complied with the order. Proposed respondent further understands that it may be liable for civil penalties in the amount provided by law for each violation of the order after it becomes final.

#### Order

*It is ordered,* That respondent Shell Oil Company, a corporation, its successors and assigns, and its officers, and respondent's agents, representatives and employees, directly or through any corporation, subsidiary, division or other device, in connection with any offering to arrange, arrangement or extension of consumer credit, as "consumer credit" is defined in Regulation Z (12 CFR 226) of the Truth-in-Lending Act (15 U.S.C. 1601 *et seq.*, as amended) do forthwith cease and desist from:

1. Failing to limit the liability of a cardholder for use of a credit card by a third person, in those cases where such third person has been given authorization by the cardholder to use such credit card, to the amount of money, property, labor, or services obtained by use prior to notification to respondent, in accordance with § 226.13(e) of Regulation Z, by the cardholder or the cardholder's agent

that such use is no longer authorized, as required by § 226.13(b)(2) of Regulation Z.

2. Informing a cardholder that respondent considers the cardholder liable for use of a credit card by a third person which occurs after the cardholder notifies respondent that such use is no longer authorized.

*Provided, however,* That it shall be a defense to any action brought hereunder for respondent to affirmatively show by a preponderance of the evidence that the alleged violation was due to a circumstance in which:

(a) It attempts to hold a cardholder liable for use of its credit card when the cardholder has received the benefit from such use, or

(b) It attempts to hold a cardholder liable for use of its credit card when the cardholder has engaged in fraudulent use of its credit card.

*It is further ordered,* That respondent notify the Commission at least (30) days prior to any proposed change in the corporate respondent such as dissolution, assignment or sale resulting in the emergence of a successor corporation, the creation or dissolution of subsidiaries or any other change in the corporation which may affect compliance obligations arising out of the order.

*It is further ordered,* That respondent deliver a copy of this order to cease and desist to all present and future supervisory personnel of respondent who are engaged in the furnishing of credit card information or in the billing or collecting of credit card accounts and that respondent secure a signed statement acknowledging receipt of said copy of this order from each such person.

*It is further ordered,* That respondent herein shall, within sixty (60) days and again within one (1) year after service of this order, file with the Commission a written report setting forth in detail the manner and form of its compliance with this order.

#### Analysis of Proposed Consent Order To Aid Public Comment

The Federal Trade Commission has accepted an agreement to a proposed consent order from Shell Oil Company.

The proposed consent order has been placed on the public record for sixty (60) days for reception of comments by interested persons. Comments received during this period will become part of the public record. After sixty (60) days, the Commission will again review the agreement and the comments received and will decide whether it should withdraw from the agreement or make final the agreement's proposed order.

The proposed complaint alleges that Shell Oil Company ("Shell") violated § 226.13(b)(2) of Regulation Z. A violation of Regulation Z is also a violation of the Truth in Lending Act and the Federal Trade Commission Act.

This Section of Regulation Z limits the liability of consumers who have been issued credit cards ("cardholders") for charges incurred on their credit cards. Specifically, this Section deals with the liability of a cardholder for "unauthorized use" of a credit card by a third person, i.e. use by a person who has no authority from the cardholder to use the card and use that results in no benefit to the cardholder. Such unauthorized use could occur, for example, when a credit card is lost and later used by the finder. Section 226.13(b)(2) limits the liability of a cardholder for such unauthorized use to the lesser of \$50.00 or the amount of charges incurred prior to the cardholder's notifying the credit card issuer of the possible unauthorized use.

The proposed complaint focuses on instances where a cardholder at one time authorized the card's use by a third person (such as a spouse) but at a later date notified Shell that the formerly-permitted use was no longer authorized. The proposed complaint alleges that Shell violated this provision of Regulation Z in such situations by refusing to terminate the liability of the cardholder immediately after notification. Instead, Shell often required that the credit card be returned to it before it would relieve the cardholder of liability.

The proposed order requires that Shell terminate this alleged practice. It prohibits Shell in such situations from holding a cardholder liable for any third-party unauthorized use after the cardholder notifies Shell of the unauthorized use in accordance with § 226.13(e) of Regulation Z. Under that Section a cardholder notifies a card issuer such as Shell by informing it of the pertinent facts of the unauthorized use that the cardholder could reasonably be required to provide. Thus, under the proposed order Shell could no longer hold a cardholder liable for third-party use until the card is returned to Shell.

The purpose of this analysis is to facilitate public comment on the proposed order, and it is not intended to constitute an official interpretation of

the agreement and proposed order or to modify in any way their terms.

Carol M. Thomas,  
Secretary.

[FR Doc. 79-34068 Filed 11-2-79; 8:45 am]  
BILLING CODE 6750-01-M

## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Ch. 1

[FRL 1352-4]

#### Availability of Additional Modeling Data and Closing of Record of Proceedings Under Clean Air Act

**AGENCY:** Environmental Protection Agency

**ACTION:** Notice of Availability of Additional Modeling Data and of the Closing of the Record of Proceedings under Section 126 of the Clean Air Act.

**SUMMARY:** The purpose of this notice is to announce the availability of additional modeling data regarding sulfur dioxide emissions of the Indiana-Kentucky Power Company, Clifty Creek Power Plant, located in Jefferson County, Indiana, prepared in connection with the hearing under section 126 of the Clean Air Act which took place on June 20, 1979, to solicit any additional public comment concerning the above issues, and to give notice that the comment period will close on December 5, 1979.

**DATES:** Modeling analysis available immediately; deadline for submission of written materials and closing of public hearing record December 5, 1979.

**ADDRESSES:** The modeling data and analysis, a verbatim transcript of the hearing, and copies of other material are available during normal working hours at the U.S. Environmental Protection Agency, Region V, Air Programs Branch, 230 South Dearborn Street, Chicago, Illinois 60604; at U.S. Environmental Protection Agency, Region IV, Air Programs Branch, 345 Courtland Street, N.E., Atlanta, Georgia, 30308, and at the Jefferson County Public Library, 420 West Main Street, Madison, Indiana 47250.

**FOR FURTHER INFORMATION CONTACT:** Mr. Thomas Harrison, Hearing Panel Chairman, Office of Regional Counsel, U.S. Environmental Protection Agency, Region V, 230 South Dearborn Street, Chicago, Illinois 60604 (312) 353-2016.

**SUPPLEMENTAL INFORMATION:** In a notice dated May 21, 1979, 44 FR 29495, EPA announced that a hearing would be held on June 20, 1979 in Louisville, Kentucky to initiate proceedings under section 126 of the Clean Air Act on the issue of

whether the Indiana-Kentucky Power Company, Clifty Creek Power Plant emits sulfur dioxide in violation of section 110(a)(2)(E)(i) of the Clean Air Act. The hearing was held, at which time it was announced that since final EPA modeling data was not yet available, the panel had decided to hold the record open until 30 days after the date when the final data and technical support documentation became available. This notice announces the availability of final modeling data and technical support documents and announces the closing of the record on December 5, 1979.

USEPA solicits and will accept written materials relevant to the issue set forth above from all interested parties. Eight copies of the material should be submitted, if possible. Written materials should be submitted to Mr. Harrison at the above address.

The EPA recommendation for a final determination under these proceedings will be based upon the preponderance of the evidence of record and will be announced in the Federal Register in the form of a proposal upon which the public will be given an opportunity to comment. Final action, following the public comment period, will be announced in the Federal Register.

Dated: November 1, 1979.

John McGuire,  
Regional Administrator.

[FR Doc. 79-34257 Filed 11-2-79; 8:45 am]  
BILLING CODE 6560-01-M

### 40 CFR Part 230

[FRL 1352-1]

#### Guidelines for Specification of Disposal Sites for Dredged or Fill Material

**AGENCY:** Environmental Protection Agency.

**ACTION:** Extension of public comment period.

**SUMMARY:** In the Federal Register of September 18, 1979 [44 FR 54222], EPA proposed guidelines for the specification of disposal sites for dredged or fill material under Section 404(b)(1) of the Clean Water Act. EPA asked that written public comments be submitted by November 19, 1979. EPA has determined that additional time should be allowed.

**DATE:** The deadline for submitting written public comments is hereby extended to December 19, 1979.

**FOR FURTHER INFORMATION CONTACT:** David G. Davis, Chief, 404 Section (WH-585), Office of Water and Waste



Management, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, D.C., 20460, 202-472-3400.

Date: October 30, 1979.

Swept T. Davis,

Acting Assistant Administrator for Water and Waste Management.

[FR Doc. 79-34134 Filed 11-2-79; 8:45 am]

BILLING CODE 6560-01-M

## FEDERAL EMERGENCY MANAGEMENT AGENCY

### 44 CFR Part 67

[Docket No. FEMA 5723]

### National Flood Insurance Program; Proposed Flood Elevation Determinations

AGENCY: Federal Insurance Administration, FEMA.

ACTION: Proposed rule.

SUMMARY: Technical information or comments are solicited on the proposed base (100-year) flood elevations listed

below for selected locations in the nation. These base (100-year) flood elevations are the basis for the flood plain management measures that the community is required to either adopt or show evidence of being already in effect in order to qualify or remain qualified for participation in the National Flood Insurance Program (NFIP).

DATES: The period for comment will be ninety (90) days following the second publication of this proposed rule in a newspaper of local circulation in each community:

ADDRESSES: See table below.

FOR FURTHER INFORMATION CONTACT: Mr. R. Gregg Chappell, National Flood Insurance Program, (202) 426-1460 or Toll Free Line (800) 424-8872 (in Alaska and Hawaii call Toll Free Line (800) 424-9080), Room 5148, 451 7th Street S.W., Washington, D.C. 20410.

SUPPLEMENTARY INFORMATION: The Federal Insurance Administrator gives notice of the proposed determinations of base (100-year) flood elevations for

selected locations in the nation, in accordance with section 110 of the Flood Disaster Protection Act of 1973 (Pub. L. 93-234), 87 Stat. 980, which added section 1363 to the National Flood Insurance Act of 1968 (Title XIII of the Housing and Urban Development Act of 1968 (Pub. L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR 67.4(a)).

These elevations, together with the flood plain management measures required by Section 60.3 of the program regulations, are the minimum that are required. They should not be construed to mean the community must change any existing ordinances that are more stringent in their flood plain management requirements. The community may at any time enact stricter requirements on its own, or pursuant to policies established by other Federal, State, or Regional entities. These proposed elevations will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and their contents.

The proposed base (100-year) flood elevations for selected locations are:

#### Proposed Base (100-Year) Flood Elevations

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
Texas	Deer Park (City), Harris County	Patrick Bayou	Tidal Road	*17
		Tucker Bayou	Tidal Road	*17
		Overland runoff	Entire community (except for Patrick and Tucker Bayous)	#2
Maps available at: City Hall, Deer Park, Texas.				
Send comments to: Honorable Robert P. Linberger, Mayor of Deer Park, P.O. Box 700, Deer Park, Texas 77536.				
Vermont	Town of Alburg, Grand Isle County.	Lake Champlain	Coastline	*102
			Mud Creek	*102
Maps available at: The Town Office.				
Send comments to: Mr. Paul Paquette, Chairman of the Board of Selectmen of Alburg, c/o Mrs. Mumley, Town Clerk, Main Street, Alburg, Vermont 05440.				
Vermont	Village of Alburg, Grand Isle County.	Lake Champlain	Coastline	*102
Maps available at: The Town Office.				
Send comments to: Mr. Howard Brown, Chairman of the Village Trustees of Alburg, c/o Loma Jarvis, Village Clerk, Main Street, Alburg, Vermont 05440.				
Vermont	Town of Bridgewater, Windsor County.	Ottawaquechee River	Downstream corporate limits	*816
			Downstream of Town Highway No. 48	*817
			4,000 feet above Town Highway No. 48	*827
			Confluence of Broad Brook	*842
			Upstream of State Route 100A	*851
			Confluence of North Branch	*862
			Upstream Town Highway No. 70	*919
			Upstream Town Highway No. 34	*987
			Confluence of Reservoir Brook	*1,049
			Upstream corporate limits	*1,066
		North Branch	Upstream of Town Highway No. 36	*873
			Upstream of Town Highway No. 53	*903
			Downstream of Town Highway No. 35	*950
		Broad Brook	Confluence with Ottawaquechee River	*842
			3,000 feet above confluence with Ottawaquechee River	*859
			Confluence of Pinney Hollow Brook	*890
Maps available at: The Town Office.				
Send comments to: Mr. Harlan Booth, Chairman of the Board of Selectmen of Bridgewater, Bridgewater, Vermont 05034.				
Vermont	Town of Danby, Rutland County	Otter Creek	Downstream Corporate Limits	*644
			Approximately 5,750' upstream of Corporate Limits	*649
			Approximately 8,500' upstream of Corporate Limits	*654
			Approximately 13,000' upstream of Corporate Limits	*654
			Upstream side of Green Mountain Railroad	*655

## Proposed Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
		Mill Brook.....	Downstream Corporate Limits.....	*685
			Approximately 200' upstream of Corporate Limits.....	*690
			Approximately 400' upstream of Corporate Limits.....	*695
			Approximately 580' upstream of Corporate Limits.....	*700
			State Route 41A (Upstream side of).....	*708
			Abandoned Mill (Upstream side of).....	*711
			Approximately 300' upstream of Abandoned Mill.....	*713

Maps available at: The Town Office.

Send comments to: Mr. Edward J. Fuller, Chairman of the Board of Selectmen, Town Office, Danby, Vermont 05739.

Vermont.....	Town of Jamaica, Windham County.	West River.....	Corporate Limits (Downstream).....	*539
			Centerline of State Highway 100 (downstream crossing).....	*551
			2,500' downstream of State Highways 30 and 100.....	*569
			Center Line of State Highways 30 and 100.....	*584
			3,440' upstream of State Highways 30 and 100.....	*610
			3,360' downstream of confluence of Ball Mountain Brook.....	*634
			230' upstream of confluence of Ball Mountain Brook.....	*658
		Wardsboro Brook.....	Confluence with West River.....	*548
			Downstream of Private Road (downstream crossing).....	*550
			Upstream of Private Road (upstream crossing).....	*560
			3,700' downstream of State Highway 100 (downstream crossing).....	*600
			1,950' downstream of State Highway 100 (downstream crossing).....	*641
			Center Line of State Highway 100 (downstream crossing).....	*670
			2,330' upstream of State Highway 100 (downstream crossing).....	*720
			4,730' upstream of State Highway 100 (downstream crossing).....	*761
			7,080' upstream of State Highway 100 (downstream crossing).....	*800
			3,260' downstream of State Highway 100 (upstream crossing).....	*839
			1,500' downstream of State Highway 100 (upstream crossing).....	*880
			Center Line of State Highway 100 (upstream crossing).....	*910
			Corporate Limits (upstream).....	*921
		Winhall River.....	Corporate Limits (downstream).....	*1,052
			Center Line of Town Highway No. 8.....	*1,062
			2,420' upstream of Town Highway No. 8.....	*1,085
			1,500' downstream of State Highways 100 and 30 (7,890' downstream of County Boundary).....	*1,110
			Center Line of State Highways 100 and 30 (7,890' downstream of County Boundary).....	*1,130
			1,170' downstream of State Highway 30 (5,500' downstream of County Boundary).....	*1,150
			Downstream of State Highway 30 (5,500' downstream of County Boundary).....	*1,167
			Upstream of State Highway 30 (5,500' downstream of County Boundary).....	*1,172
			1,950' upstream of State Highway 30 (5,500' downstream of County Boundary).....	*1,195
			Center Line of State Highway 30 (2,650' downstream of County Boundary).....	*1,218
			500' downstream of County Boundary.....	*1,235
			County Boundary (upstream).....	*1,251
		Ball Mountain Brook.....	Confluence with West River.....	*657
			765' upstream of confluence with West River.....	*675
			Center Line of Back Street.....	*692
			465' upstream of Back Street.....	*700
			Center Line of State Highways 100 and 30.....	*730
			1,690' upstream of State Highways 30 and 100.....	*765
			1,340' downstream of State Aid Highway No. 1 (downstream crossing).....	*800
			Center Line of State Aid Highway No. 1 (downstream crossing).....	*834
			1,680' upstream of State Aid Highway No. 1 (downstream crossing).....	*870
			2,240' downstream of State Aid Highway No. 1 (upstream crossing).....	*910
			1,150' downstream of State Aid Highway No. 1 (upstream crossing).....	*940
			Upstream of State Aid Highway No. 1 (upstream crossing).....	*969
			1,850' upstream of State Aid Highway No. 1 (upstream crossing).....	*1,011

Maps available at: The Office of the Town Clerk.

Send comments to: Mr. Roy Coleman, Chairman of the Board of Selectmen of Jamaica, Town Office, Jamaica, Vermont 05343.

Vermont.....	Town of North Hero, Grand Isle County.	Lake Champlain.....	Coastline.....	*102
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Maps available at: The Office of the Town Clerk.

Send comments to: Mr. Irving W. Blackwell, Chairman of the Board of Selectmen of North Hero, Town Office, North Hero, Vermont 05474.

Vermont.....	Town of Richford, Franklin County.	Missisquoi River.....	Corporate Limits (2,670' downstream of confluence of Loveland Brook).....	*427
			Confluence of Loveland Brook.....	*430
			Corporate Limits (675' upstream of confluence of Loveland Brook).....	*431
			Corporate Limits (1,700' downstream of Canadian Pacific Railway).....	*450
			Canadian Pacific Railway Bridge.....	*453
			7,680' upstream of Canadian Railway Bridge.....	*463
			3,000' downstream of confluence of Stanhope Brook.....	*473
			1,500' downstream of confluence of Stanhope Brook.....	*480
			Confluence of Stanhope Brook.....	*487
			5,330' upstream of confluence of Mountain Brook.....	*495
			Corporate Limits (Upstream of State Route 105A).....	*503
		North Branch.....	Confluence with Missisquoi River.....	*435
			Downstream Corporate Limits.....	*435
			River Street.....	*435
			Upstream Corporate Limits.....	*442



## Proposed Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
Vermont	Richford, Franklin County	Loveland Brook	Confluence with Missisquoi River	*430
			560' upstream of confluence with Missisquoi River	*430
			420' downstream of State Route 105	*437
			Downstream State Route 105	*444
			Upstream State Route 105	*457
			2,200' upstream of State Route 105	*466
			2,540' upstream of State Route 105	*472
			600' downstream of Highway 18	*482
			120' downstream of Highway 18	*492
			Downstream Highway 18	*494
			Upstream Highway 18	*500
			620' upstream of Highway 18	*510
			1,115' upstream of Highway 18	*520
			1,250' upstream of Highway 18	*523
		Stanhope Brook	Confluence with Missisquoi River	*488
			Canadian Pacific Railway	*491
			190' downstream of State Route 105	*493
			Upstream of State Route 105	*500
			360' upstream of State Route 105	*510
		Mountain Brook	675' upstream of State Route 105	*520
			835' upstream of State Route 105	*525
			Confluence with Missisquoi River	*488
			265' downstream of Canadian Pacific Railway	*488
			Canadian Pacific Railway	*491
	Richford, Franklin County	Lucas Brook	Upstream Canadian Pacific Railway	*496
			Upstream State Route 105	*499
			60' upstream of State Route 105	*503
			260' upstream of State Route 105	*509
			400' upstream of State Route 105	*517
			Confluence with Missisquoi River	*501
			100' downstream of State Route 105A	*501
			State Route 105A	*503
			Canadian Pacific Railroad	*504
			Town Highway 31	*510
			575' upstream of Town Highway 31	*520
			1,035' upstream of Town Highway 31	*530
			1,335' upstream of Town Highway 31	*539

Maps available at: The Office of the Town Clerk.

Send comments to: Mr. L. Felch Coy, Chairman of the Board of Selectment of Richford, R.F.D. 1, Richford, Vermont 05476.

Vermont	Village of Richford, Franklin County	Missisquoi River	Downstream Corporate Limits	*432
			Downstream confluence of Diversion Ditch	*432
			Confluence of North Branch	*435
			Island Access Road	*438
			Upstream Inlet to Diversion Ditch	*440
			Main Street	*447
			Upstream Corporate Limits	*450
		Diversion Ditch	Downstream confluence with Missisquoi River	*432
			Granite Block Weir	*440
		North Branch	Downstream confluence with Missisquoi River	*435
			River Street	*436
			Upstream limit of flooding affecting community	*436

Maps available at: The Office of the Town Clerk.

Send comments to: Mr. Wilton Rouse, Chairman of the Village of Richford, Maple Street, Richford, Vermont 05476.

Vermont	Town of Shelburne, Chittenden County	Munroe Brook	Confluence w/ Shelburne Bay	*102
			Green Mountain Railroad (Downstream)	*111
			Green Mountain Railroad (Upstream)	*125
			750' downstream of Bay Road	*135
			Bay Road (Downstream)	*143
			Bay Road (Upstream)	*148
			Route 7 (Downstream)	*148
			Route 7 (Upstream)	*153
			Private Road	*155
			Longmeadow Drive (Downstream)	*157
		McCabes Brook	Longmeadow Drive (Upstream)	*162
			3,120' upstream of Longmeadow Drive	*172
			Harbor Road (Downstream)	*110
			Harbor Road (Upstream)	*111
			2,500' upstream of Harbor Road	*120
			Private Road (Downstream)	*130
			Private Road (Upstream)	*133
			1,350' upstream of Private Road	*148

Maps available at: The Town Office.

Send comments to: Mr. Burt Moffatt, Shelburne Town Manager, Town Office, Route 7, Shelburne, Vermont 05482.

Vermont	Town of Troy, Orleans County	Missisquoi River	Downstream Corporate Limits	*517
			1,200' downstream of North Troy Dam	*549
			Town Highway 12 (Upstream side 60')	*621
			800' downstream of Bakers Falls Dam	*693
			Bakers Falls Dam (Upstream side 20')	*746
			Elm Street (State Route 100)	*752
			Upstream Corporate Limits	*754

## Proposed Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
		Jay Branch.....	Confluence with Missisquoi River.....	*622
			2,000' upstream of confluence with Missisquoi River.....	*628
		Beetle Brook.....	100' downstream of Town Highway 28.....	*768
			80' upstream of Town Highway 28.....	*773
			60' upstream of 1st crossing of Town Highway 29.....	*781
			Upstream of 2nd crossing of Town Highway 29.....	*810
Maps available at: The Town Clerk's Office.				
Send comments to: Mr. Melvin Wheeler, Chairman of the Board of Selectmen of Troy, Town Office, Main Street, North Troy, Vermont 05859.				
Vermont.....	Town of Wardsboro, Windham County.	Wardsboro Brook.....	Approximately 250 feet upstream of downstream corporate limits.....	*925
			Approximately 1,820 feet downstream of Wardsboro Village bridge.....	*955
			Confluence of South Wardsboro Brook.....	*1,009
			Approximately 3,500 feet downstream of Wardsboro Center bridge.....	*1,050
			Approximately 500 feet downstream of Wardsboro Center bridge.....	*1,100
			Upstream side of Wardsboro Center Bridge.....	*1,110
			Approximately 1,300 feet upstream of Wardsboro Center bridge.....	*1,150
			Approximately 2,100 feet downstream of New Bridge.....	*1,200
			Upstream side of New Bridge.....	*1,240
			Approximately 2,200 feet upstream of confluence of Waite Brook.....	*1,300
			Upstream side of Sheldon Hill Road extended.....	*1,360
			Approximately 240 feet downstream of West Wardsboro Bridge.....	*1,410
			Approximately 100 feet upstream of West Wardsboro Bridge.....	*1,420
		South Wardsboro Brook.....	Confluence of Wardsboro Brook.....	*1,009
			Johnson Road extended.....	*1,028
			Approximately 2,900 feet upstream of confluence of Wardsboro Brook.....	*1,065
Maps available at: The Town Clerk's Office.				
Send comments to: Dr. Courtney Bishop, Chairman of the Board of Selectmen of Wardsboro, P.O. Box 802, Wardsboro, Vermont 05301.				
Virginia.....	Town of Coeburn, Wise County....	Guest River.....	Interstate Railroad (upstream).....	*1,985
			Confluence of Toms Creek.....	*1,988
		Toms Creek.....	May Avenue.....	*1,988
			Lincoln Street (upstream).....	*1,992
			Upstream Corporate Limits.....	*1,995
		Little Toms Creek.....	High Street.....	*1,988
			Dickerson Avenue (upstream side).....	*1,998
			Spruce Street (upstream side).....	*2,000
			Upstream Corporate Limits.....	*2,008
Maps available at: The Town Hall.				
Send comments to: Mr. Terry L. Gibson, Town Manager of Coeburn, P.O. Box 370, Coeburn, Virginia 24230.				
Virginia.....	Town of Wise, Wise County.....	Glade Creek.....	Confluence with Yellow Creek.....	*2,362
			Elam Street (upstream side).....	*2,427
			U.S. Route 23 (upstream side).....	*2,432
			J. J. Kelley School Drive (upstream side).....	*2,440
			Upstream Corporate Limits.....	*2,449
		Yellow Creek.....	Downstream corporate Limits.....	*2,142
			1st Downstream Private Drive (extended).....	*2,220
			Confluence with Glade Creek.....	*2,360
			State Route 646 (upstream side).....	*2,420
			State Route 640 (upstream side).....	*2,429
			Private Road at upstream corporate limits.....	*2,443
		Tributary to Yellow Creek.....	Confluence with Yellow Creek.....	*2,429
			First downstream crossing of Private Road off of Hurricane Road (640).....	*2,430
			Upstream Corporate Limits.....	*2,438
Maps available at: The Municipal Building, 122 Main Street, Wise, Virginia.				
Send comments to: Honorable Roger Cox, Mayor of Wise, P.O. Box 1100, Wise, Virginia 24293.				
West Virginia.....	Jefferson County.....	Opequon Creek.....	County Route 3.....	*402
			County Route 4.....	*406
			County Route 51.....	*441
			County Route 1/9.....	*445
		Shenandoah River.....	Allegheny Power System Dam (Downstream).....	*332
			Allegheny Power System Dam (Upstream).....	*342
			State Route 9.....	*360
			Confluence of Bullskin Run.....	*380
			Confluence of Longmarsh Run.....	*390
		Turkey Run.....	Abandoned Bridge.....	*464
			Weir (Downstream).....	*477
			Weir (Upstream).....	*483
			County Route 1/8 (Downstream).....	*483
			County Route 1/8 (Upstream).....	*487
			Footbridge.....	*498
			County Route 1/16.....	*498
			County Route 1 (Downstream).....	*497
			County Route 1 (Upstream).....	*499
			Private Bridge (Downstream).....	*507
			Private Bridge (Upstream).....	*510
			Footbridge (Downstream).....	*511
			Footbridge (Upstream).....	*513
Maps available at: The County Commissioner's Office, Courthouse, and the County Planning Commission, 104 East Washington Street, Charles Town, West Virginia.				
Send comments to: Mr. David Ash, County Administrator, County Courthouse, Charles Town, West Virginia 25414.				

## Proposed Base (100-Year) Flood Elevations—Continued

State	City/town/county	Source of flooding	Location	#Depth in feet above ground. *Elevation in feet (NGVD)
West Virginia	Town of Nutter Fort, Harrison County.	Elk Creek	Downstream Corporate Limits	*968
			At Downstream Boundary of Norwood Park	*969
		Nutter Run	Upstream Corporate Limits	*971
			State Route 20 bridge upstream	*972
			Nutter Run Road upstream	*983
			Upstream Corporate Limits	*989

Maps available at: The Mayor's Office.

Send comments to: Honorable John W. Carter, Mayor of Nutter Fort, 1411 Buckhannon Pike, Nutter Fort, West Virginia 26301.

(National Flood Insurance Act of 1968 [Title XIII of Housing and Urban Development Act of 1968], effective January 28, 1969 [33 FR 17804, November 28, 1968], as amended [42 U.S.C. 4001-4128]; Executive Order 12127, 44 FR 19867; and delegation of authority to Federal Insurance Administrator, 44 FR 20963)

Issued October 15, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-33974 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

#### 44 CFR Part 67

[Docket No. FI-5473]

#### National Flood Insurance Program; Proposed Flood Elevation Determination for Township of Monaghan, York County, Pa.; Correction

**AGENCY:** Federal Insurance  
Administration, FEMA.

**ACTION:** Correction to proposed rule for  
the Township of Monaghan, York  
County, Pennsylvania.

**SUMMARY:** The Federal Insurance  
Administration has erroneously  
published at 44 FR 26924 on May 8, 1979,  
the proposed flood elevation  
determination for the Township of  
Monaghan, York County, Pennsylvania.  
This notice will serve as cancellation of  
that publication. A new notice of  
proposed rule will be published in the  
near future.

**FOR FURTHER INFORMATION CONTACT:**  
Mr. Robert G. Chappell, National Flood  
Insurance Program, (202) 426-1460 or  
Toll Free Line (800) 424-8872 (in Alaska  
and Hawaii call Toll Free Line (800) 424-  
9080), Room 5150, 451 Seventh Street,  
SW., Washington, D.C. 20410.

(National Flood Insurance Act of 1968 [Title  
XIII of Housing and Urban Development Act  
of 1968], effective January 28, 1969 [33 FR  
17804, November 28, 1968], as amended; 42  
U.S.C. 4001-4128; Executive Order 12127, 44  
FR 19367; and delegation of authority to

Federal Insurance Administrator, 44 FR  
20963.)

Issued: October 24, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-34068 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

#### 44 CFR Part 67

[Docket No. FI-4765]

#### National Flood Insurance Program; Proposed Flood Elevation Determination for Millersburg, Dauphin County, Pa.

**AGENCY:** Federal Insurance  
Administration, FEMA.

**ACTION:** Cancellation of proposed rule  
for the Borough of Millersburg, Dauphin  
County, Pennsylvania.

**SUMMARY:** Due to a recent engineering  
review, it has been determined that the  
Proposed Flood Elevation Determination  
for the Borough of Millersburg, Dauphin  
County, Pennsylvania, published at 43  
FR 51426 on November 3, 1978, should  
be canceled. A new notice of proposed  
flood elevation will be published in the  
near future.

**FOR FURTHER INFORMATION CONTACT:**  
Mr. Robert G. Chappell, National Flood  
Insurance Program, (202) 426-1460 or  
Toll Free Line (800) 424-8872 (in Alaska  
and Hawaii call Toll Free Line (800) 424-  
9080), Room 5150, 451 Seventh Street,  
SW., Washington, D.C. 20410.

(National Flood Insurance Act of 1968 [Title  
XIII of Housing and Urban Development Act  
of 1968], effective January 28, 1969 [33 FR  
17804, November 28, 1968], as amended; 42  
U.S.C. 4001-4128; Executive Order 12127, 44  
FR 19367; and delegation of authority to  
Federal Insurance Administrator 44 FR  
20963).

Issued: October 18, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-34069 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

#### 44 CFR Part 67

[Docket No. FI-5514]

#### National Flood Insurance Program; Proposed Flood Elevation Determination for Township of Liverpool, Perry County, Pa.; Correction

**AGENCY:** Federal Insurance  
Administration, FEMA.

**ACTION:** Correction to proposed rule for  
the Township of Liverpool, Perry  
County, Pennsylvania.

**SUMMARY:** Due to a recent technical  
review of the Flood Insurance Study and  
Rate Maps for the Township of  
Liverpool, Perry County, Pennsylvania,  
the following published proposed base  
(100-year) flood elevations (44 FR 33428)  
are adjusted so as to correctly  
correspond with the community's Flood  
Insurance Study and Rate Maps:

Source of flooding	Location	*Elevation in feet, national geodetic vertical datum
Bargers Run.....	L. R. 50023.....	*442
Ploutz Run .....	Downstream corporate limits.	*414

**FOR FURTHER INFORMATION CONTACT:**

Mr. Robert G. Chappell, National Flood Insurance Program, (202) 426-1460 or Toll Free Line (800) 424-8872 (in Alaska and Hawaii call Toll Free Line (800) 424-9080), Room 5150, 451 Seventh Street, SW, Washington, D.C. 20410.

(National Flood Insurance Act of 1968 (Title XIII of Housing and Urban Development Act of 1968), effective January 28, 1969 (33 FR 17804, November 28, 1968), as amended; 42 U.S.C. 4001-4128; Executive Order 12127, 44 FR 19367; and delegation of authority to Federal Insurance Administrator, 44 FR 20983).

Issued: October 18, 1979.

Gloria M. Jimenez,  
Federal Insurance Administrator.

[FR Doc. 79-34090 Filed 11-2-79; 8:45 am]

BILLING CODE 6718-03-M

**FEDERAL COMMUNICATIONS COMMISSION****47 CFR Part 64**

[Docket No. 20828]

**Second Computer Inquiry; Order Extending Time for Filing Reply Comments**

**AGENCY:** Federal Communications Commission.

**ACTION:** Extension of time (second computer inquiry).

**SUMMARY:** At 44 FR 39513, July 6, 1979, the Federal Communications Commission published a tentative decision and further notice of inquiry and rulemaking relating to the furnishing of computer processing services. Because of the complexity of the issues raised in this proceeding and their overall importance, the FCC has granted a request for extension of time for filing reply comments in this proceeding.

**DATES:** Reply Comments must be received on or before December 7, 1979.

**ADDRESSES:** Federal Communications Commission, Washington, D.C. 20554.

**FOR FURTHER INFORMATION CONTACT:** Russell Frisby, Common Carrier Bureau, 332-9342.

In the matter of amendment of § 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry); Order (See 44 FR 47961, August 16, 1979).

Adopted: October 23, 1979.

Released: October 26, 1979.

By the Chief, Common Carrier Bureau:

1. The National Telecommunications and Information Administration (NTIA), the American Telephone and Telegraph Company (AT&T), the Computer and Business Equipment Manufacturers Association (CBEMA) and the Association of Data Processing Service Organizations (ADAPSO) have filed requests with this Commission to have the time for filing reply comments on the *Tentative Decision and Further Notice of Inquiry* and Rulemaking (*Tentative Decision*) in this proceeding extended. NTIA seeks an extension of time until December 2, 1979 while AT&T seeks an extension until December 7, 1979 and CBEMA and ADAPSO seek extensions until December 17, 1979. Generally the parties state that due to the large volume of comments and the broad range of important issues which have been raised, the thirty days allotted for the filing of reply comments are insufficient to allow for analysis of the comments and preparation of carefully considered replies.

2. Because of the complexity of the issues raised in this proceeding and their overall importance some extension of time appears reasonable and in the public interest. An extension of time up to and including December 7, 1979 will allow ample time for the parties to file fully responsive pleadings.

3. Accordingly, *It is ordered*, pursuant to Section 0.291 of the Commission's Rules on delegation of authority, That the requests for extension of time for all parties to file reply comments on the *Tentative Decision* are granted in part. Reply comments shall be filed on or before December 7, 1979.

Philip L. Verveer,  
Chief, Common Carrier Bureau.

[FR Doc. 79-34078 Filed 11-2-79; 8:45 am]

BILLING CODE 6712-01-M

**DEPARTMENT OF COMMERCE****National Oceanic and Atmospheric Administration****50 CFR Ch. VI****Caribbean Fishery Management Council and Scientific and Statistical Committee and Advisory Panel; Public Meetings**

**AGENCY:** National Marine Fisheries Service, NOAA, Commerce.

**ACTION:** Notice of public meetings.

**SUMMARY:** Caribbean Fishery Management Council, established by

Section 302 of the Fishery Conservation and Management Act of 1976 (Public Law 94-265), its Scientific and Statistical Committee (SSC) and its Advisory Panel (AP), will meet concurrently and jointly. The meetings are open to the public.

**DATES:** Council Meeting: On November 28-29, 1979, the Council will meet from 9 a.m., to approximately 5 p.m., both days. The Council will also meet with fishermen on November 29, 1979, during the afternoon session. SSC and AP Meeting: On November 27-28, 1979, the SSC and AP will meet from 9 a.m., to approximately 5 p.m., both days. Joint Meeting: The Council, AP, and SSC will have a joint meeting during the afternoon session of November 28, 1979.

**ADDRESS:** The meetings will take place at the Villa Parguera Hotel, Lajas, Puerto Rico.

**FOR FURTHER INFORMATION CONTACT:** Omar Munoz-Roure, Executive Director, Caribbean Fishery Management Council, Suite 1108, Banco de Ponce Building, Hato Rey, Puerto Rico, Telephone: (809) 753-4926.

**SUPPLEMENTARY INFORMATION:** Council Meeting Agenda: Items to be considered by the Council are the final draft Environmental Impact Statement/Fishery Management Plan (EIS/FMP), regulatory analysis and proposed regulations for the Spiny Lobster FMP; second working draft FMP for Shallow-Water Reef Fishes; situation of boundary limits and fishing negotiations; consideration of the priority listing for new FMP development; administrative issues; and other Council business. SSC Meeting Agenda: Items to be considered by the SSC are the final draft EIS/FMP, regulatory analysis and proposed regulations for the Spiny Lobster FMP; second working draft FMP for Shallow-Water Reef Fishes, and other SSC business. AP Meeting Agenda: Items to be considered by the AP are the final draft EIS/FMP, regulatory analysis and proposed regulations for the Spiny Lobster FMP; second working draft FMP for Shallow-Water Reef Fishes, and other AP business.

Dated: October 30, 1979.

Winfred H. Meibohm,  
Executive Director, National Marine Fisheries Service.

[FR Doc. 79-34152 Filed 11-2-79; 8:45 am]

BILLING CODE 3510-22-M

# Notices

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

## DEPARTMENT OF AGRICULTURE

### Forest Service

#### Modification of Surety Bonding Policy

**AGENCY:** Forest Service, USDA.

**ACTION:** Proposed policy.

**SUMMARY:** This proposal would revise agency policy relating to the use of individual surety bonds for contractual obligations with the Forest Service. At present, corporate surety bonds, individual surety bonds, irrevocable letters of credit, negotiable securities of the United States and cash may be used as security for panel bonds. Such bonds are furnished by individuals, partnerships, and corporations in connection with contracts for the procurement of supplies and services (including public works construction); and on timber sale contracts, special use authorizations for the occupancy of Federal lands, and licenses. If adopted, it is anticipated that individual sureties will no longer be accepted as security for any panel bond on timber sale contracts, special use authorizations, Forest Service mineral prospecting and extraction permits, approved operating plans under the mining and mineral leasing laws, and licenses.

**DATE:** Comments must be received on or before January 4, 1980.

**ADDRESS:** Submit comments to: Chief R. Max Peterson, Forest Service, Department of Agriculture, P.O. Box 2417, Washington, D.C. 20013.

All written submissions made pursuant to this notice will be available for public inspection in the Fiscal and Accounting Management Staff, Room 701, 1621 North Kent Street, Arlington, Virginia, during regular business hours. For further information contact: Mr. Harold Foxworthy, Fiscal and Accounting Management Staff, Forest Service, Department of Agriculture, P.O.

Box 2417, Washington, DC 20013, (703) 235-8359.

It is proposed to revise Forest Service Manual (FSM 6506) procedures to read as follows:

#### 6506.5 Definitions.

(3) Individual surety bond—Executed by two or more acceptable individuals who in lieu of corporate surety, join with the contracting principal to secure the bond. In addition to the prescribed bond instrument, the individuals execute SF-28, Affidavit of Individual Surety. See FSM 6506.65.

#### 6506.65 Individual Surety Bonds.

Individual surety bonds are the least desirable form of security. Corporate surety, irrevocable letter of credit, deposited securities or cash deposits are all preferred over individual surety. However, individual surety may be accepted in certain instances at the discretion of the bond approving (contracting) officer.

1. Procurement contracts. Requirements for the use of individual surety bonds on government contracts for the procurement of supplies or services (including public works construction) are provided in section 1-10.203 of the Federal Procurement Regulations (FPR). Contracting officers may accept individual surety bonds on these contracts subject to the following requirements.

A. Whenever individual sureties are offered, contracting officers will work with and assist contractors to try to obtain corporate surety or an irrevocable letter of credit. The individuals willing to serve as surety for the contractor should be asked to co-sign with the contractor to obtain corporate surety, or to pledge their assets to a bank to collateralize a letter of credit. If these efforts are unsuccessful then as a last resort, the individual sureties may be accepted. When appropriate, contracting officers should obtain the advice and assistance of the fiscal officer. Such activities will be documented in the contract file.

B. When individual surety bonds are accepted, at least two individuals acting as surety must execute SF-28, Affidavit of Individual Surety, in addition to the bond. The net worth of each individual must be not less than the penal sum of the bond. FPR 1-10.203 vests broad discretionary authority in the contracting officer to determine the acceptability of individual sureties. Where the affidavit fails to include sufficient information, contracting officers shall request additional certifications and financial statements as necessary. In some cases a different or additional surety may be required to assure adequate protection of the government interest.

C. If the contractor is a partnership, sureties other than its partners will be required. If the contractor is a corporation, sureties other than its officers or stockholders will be required. This latter requirement may

be waived if the corporate officer or stockholder has ample means other than his interest in the corporation.

2. Timber Sale contracts, special use authorizations, Forest Service mineral prospecting and extraction permits, approved operating plans under the mining and mineral leasing laws, and licenses, while contractual in nature, are not procurement contracts and are not covered by the requirements in the Federal Procurement Regulations. Instead, they are administrative as provided in the Code of Federal Regulations and the policy direction in the Forest Service Manual to assure maximum protection of the government interest, bonds secured with individual surety will not be accepted after January 1, 1980, on: Timber sale contracts, special use authorizations, Forest Service mineral prospecting and extraction permits, approved operating plans under the mining and mineral leasing laws, and licenses.

Jerome A. Miles,

Deputy Chief.

October 29, 1979.

[FR Doc. 79-34155 Filed 11-2-79; 8:45 am]

BILLING CODE 3410-11-M

## Soil Conservation Service

### Batavia Kill Watershed, New York; Intent To Prepare Environmental Impact Statement

**AGENCY:** Soil Conservation Service, U.S. Department of Agriculture.

**ACTION:** Notice of Intent to Prepare and Environmental Impact Statement.

**FOR FURTHER INFORMATION CONTACT:** Mr. Robert L. Hilliard, State Conservationist, Soil Conservation Service, U.S. Courthouse and Federal Building, 100 S. Clinton Street, Room 771, Syracuse, New York 13260, telephone number (315) 423-5493.

**NOTICE:** Pursuant to Section 102 (2)(C) of the National Environmental Policy Act of 1966; the Council on Environmental Quality Guidelines (40 CFR Part 1500); and the Soil Conservation Service Guidelines (7 CFR Part 650); the Soil Conservation Service, U.S. Department of Agriculture, gives notice that an environmental impact statement is being prepared for the remaining works of improvement in the Batavia Kill Watershed, Greene County, New York.

The environmental assessment of this federally-assisted action indicates that the project may cause significant local, regional, or national impacts on the environment. As a result of these findings, Mr. Robert L. Hilliard, State

Conservationist, has determined that the preparation and review of the environmental impact statement is needed for this project. The project concerns a plan for floodwater protection. The remaining planned works of improvement include floodwater retarding structure site #2 on tributary 17 of Batavia Kill.

A draft environmental impact statement will be prepared and circulated for review by agencies and the public. The Soil Conservation Service invites participation of agencies and individuals with expertise or interest in the preparation of the draft environmental impact statement. The draft environmental impact statement will be developed by Mr. Robert L. Hilliard, State Conservationist, Soil Conservation Service, U.S. Courthouse and Federal Building, 100 S. Clinton Street, Room 771, Syracuse, New York 13260.

Dated: October 25, 1979.

(Catalog of Federal Domestic Assistance Program No. 10.904, Watershed Protection and Flood Prevention Program—Public Law 83-566, 16 U.S.C. 1001-1008)

Joseph W. Haas,  
Assistant Administrator for Water Resources,  
Soil Conservation Service.

[FR Doc. 79-34064 Filed 11-2-79; 8:45 am]

BILLING CODE 3410-16-M

### Upper Culotches Bay Watershed, Ark.; No Significant Environmental Impact

**AGENCY:** Soil Conservation Service, U.S. Department of Agriculture.

**ACTION:** Notice of finding of no significant impact.

#### FOR FURTHER INFORMATION CONTACT:

Mr. M. J. Spears, State Conservationist, Soil Conservation Service, Federal Office Building, 700 West Capitol Avenue, Little Rock, Arkansas 72203, telephone 501-378-5445.

**NOTICE:** Pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969; the Council on Environmental Quality Guidelines (40 CFR Part 1500); and the Soil Conservation Service Guidelines (7 CFR Part 650); the Soil Conservation Service, U.S. Department of Agriculture, gives notice that an environmental impact statement is not being prepared for the deauthorization of Federal funding of the Upper Culotches Bay Watershed, Woodruff and Prairie Counties, Arkansas.

The environmental assessment of this action indicates that deauthorization of Federal funding of the project will not cause significant local, regional, or national impacts on the environment. As a result of these findings, Mr. M. J.

Spears, State Conservationist, has determined that the preparation and review of an environmental impact statement are not needed for this action.

The finding of no significant impact has been forwarded to the Environmental Protection Agency. The basic data developed during the environmental assessment are on file and may be reviewed by contacting Mr. M. J. Spears, State Conservationist, Soil Conservation Service, Federal Office Building, 700 West Capitol Avenue, Little Rock, Arkansas 72203, telephone 501-378-5445. An environmental impact appraisal has been prepared and sent to various Federal, State, and local agencies and interested parties. A limited number of copies of the environmental impact appraisal are available to fill single copy requests at the above address.

No administrative action on implementation of the proposal will be taken until 60 days after the date of this publication in the Federal Register January 4, 1980.

Dated: October 25, 1979.

(Catalog of Federal Domestic Assistance Program No. 10.904, Watershed Protection and Flood Prevention Program, Public Law 83-566, 16 U.S.C. 1001-1008)

Joseph W. Haas,  
Assistant Administrator for Water Resources,  
Soil Conservation Service.

[FR Doc. 79-34065 Filed 11-2-79; 8:45 am]

BILLING CODE 3410-16-M

### DEPARTMENT OF COMMERCE

#### National Oceanic and Atmospheric Administration

#### Pacific Fishery Management Council and Its Scientific and Statistical Committee; Public Meeting With Partially Closed Session

**AGENCY:** National Marine Fisheries Service, NOAA.

**SUMMARY:** The Pacific Fishery Management Council and its Scientific and Statistical Committee will conduct a series of meetings which will include a Council scoping meeting.

**DATES:** December 11-13, 1979.

**ADDRESS:** The meetings will take place at the Sheraton-Renton Inn, 800 Rainier Avenue South, Renton, Washington.

**FOR FURTHER INFORMATION CONTACT:** Pacific Fishery Management Council, 526 S.W. Mill Street, Second Floor, Portland, Oregon 97201, Telephone: (503) 221-6352.

**SUPPLEMENTARY INFORMATION:** The Pacific Fishery Management Council was established by Section 302 of the

Fishery Conservation and Management Act of 1976 (Public Law 94-265), and the Council has established a Scientific and Statistical Committee to assist in carrying out its responsibilities. Meeting Agendas follows:

**Scientific and Statistical Committee (SSC)** (open meeting) (December 11-12, 1979) (1 p.m. to 5 p.m. on Tuesday, December 11; 10 a.m. to 5 p.m. on Wednesday, December 12).

**Agenda:** Discuss fishery management plans under development, conduct a public comment period beginning at 3:30 p.m. on December 11, and conduct other Committee business.

**Council:** (open meeting) (December 12-13, 1979) (1 p.m. to 5 p.m. on December 12; 8 a.m. to 5 p.m. on December 13).

**Agenda: Open Session—Review of FMP's;** conduct other fishery management business, conduct a public comment period beginning at 4 p.m. on December 12, 1979, review proposed 1980 amendment to the Washington, Oregon, California Trawl PMP, and conduct a scoping meeting 1 p.m. on December 12, to determine the scope and significance of issues related to the Herring Fishery Management Plan. Members of affected organizations and agencies, and other interested persons are invited to participate in this meeting.

**Council:** (closed session) December 12 (10 a.m. to 11:30 a.m.)

**Agenda: Closed Session—Discuss the status of current maritime boundary and resource negotiations between the U.S. and Canada and discuss personnel matters concerning appointments to vacancies on subpanels and teams. Only those Council members, Scientific and Statistical Committee members, and related staff having security clearance will be allowed to attend this closed session. The Assistant Secretary for Administration of the Department of Commerce with the concurrence of its General Counsel, formally determined on June 20, 1979, pursuant to Section 10(d) of the Federal Advisory Committee Act, that the agenda items covered in the closed session may be exempt from the provisions of the Act relating to open meetings and public participation therein, because items will be concerned with matters that are within the purview of 5 U.S.C. 552b(c) (1), as specifically authorized under criteria established by an executive order to be kept secret in the interests of national defense or foreign policy and (6), as information which is properly classified pursuant to Executive Order as information of a personal nature where disclosure would constitute a clearly unwarranted invasion of personal privacy. (A copy of the determination is available for public**

inspection and copying in the Central Reference and Records Inspection Facility, Room 5317, Department of Commerce.) All other portions of the meeting will be open to the public.

Dated: October 30, 1979.

Winfred H. Meibohm,  
Executive Director, National Marine  
Fisheries Service.

[FR Doc. 79-34153 Filed 11-2-79; 8:45 am]

BILLING CODE 3510-22-M

## Office of the Secretary

### National Laboratory Accreditation Criteria Committee for Thermal Insulation Materials (NLACC-1); Renewal

In accordance with the Federal Advisory Committee Act, 5 U.S.C. App. (1976) and Office of Management and Budget Circular A-63 of March 1974, and after consultation with the General Services Administration, the Secretary of Commerce has determined that the renewal of the National Laboratory Accreditation Criteria Committee for Thermal Insulation Materials is in the public interest in connection with the performance of duties imposed on the Department by law.

The Committee was first established on November 3, 1977, and was scheduled to terminate on November 3, 1979. Its original purpose was to develop and recommend general and specific criteria for accrediting laboratories that test thermal insulation materials. While this objective has been achieved and criteria based on recommendations from the committee have been issued, it has become apparent as we have gained more experience with the program that revision of these criteria is needed. Under Section 7a.16 of the procedures for the National Voluntary Laboratory Accreditation Program (NVLAP), the same procedures pertaining to the original development of the criteria must be followed.

Accordingly, in renewing the Committee, the Secretary has established for it a revised set of functions: (1) to advise and recommend revisions to the general and specific criteria, and (2) to evaluate the written and oral comments submitted by interested parties on the proposed revised criteria that the Secretary publishes for public comment under Section 7a.8 of the procedures. Drawing on its work of the last two years, the initial experience of actually using the criteria for accrediting laboratories, and the expertise and experience of its individual members, the Committee will provide ongoing advice to the Secretary

relative to the criteria used for accrediting laboratories that test thermal insulation materials.

As initially established, the committee will continue with a balanced representation of 21 members, chaired by the Department's Deputy Assistant Secretary for Product Standards, and will operate under the Federal Advisory Committee Act.

Copies of the Committee's renewed charter will be filed with appropriate committees of the congress and with the Library of Congress fifteen days after the date this notice appears in the Federal Register (November 30, 1979)

Inquiries or comments may be addressed to Mrs. Yvonne Barnes, Committee Management Analyst, Office of Organization and Management Systems, Room 5317, U.S. Department of Commerce, Washington, D.C. 20230, telephone: 202-377-3271; or to the Committee Control Officer, Dr. Howard I. Forman, Deputy Assistant Secretary for Product Standards, Room 3876, U.S. Department of Commerce, Washington, D.C. 20230, telephone: 202-377-3221.

Dated: November 1, 1979.

Guy W. Chamberlain, Jr.

Assistant Secretary for Administration.

[FR Doc. 79-34139 Filed 11-2-79; 8:45 am]

BILLING CODE 3510-17-M

## DEPARTMENT OF DEFENSE

### Corps of Engineers

#### Intent To Prepare a Draft Environmental Impact Statement for Maline Creek, Mo.

**AGENCY:** St. Louis District, U.S. Army Corps of Engineers.

**ACTION:** Notice of Intent to Prepare a Draft Environmental Impact Statement for Maline Creek, Missouri.

**SUMMARY:** 1. *Proposed Action:* The proposed action is to prepare a Draft Environmental Impact Statement for the Maline Creek, Missouri, General Investigation Study concerning flooding and related land resource problems. Nonstructural measures will address controlling the future land use and types of future development which may be located within the floodplain area. Structural measures will provide a means for preventing or reducing flood damages to existing development, streambank erosion, and improving the aquatic habitat diversity.

2. *Alternatives:* Alternatives studied included all known applicable structural and nonstructural measures such as: detention basins; flood proofing; channel modifications; aquatic habitat

structures; linear park considerations; combined linear park and detention sites; and no action.

### 3. *Scoping Process:*

a. *Public Involvement Program:* A three level public participation and agency coordination program was developed to coordinate the study progress with all appropriate Federal, state, and local agencies, as well as interested public groups and individuals. Because the majority of this planning process was completed prior to the identification of the scoping process, additional levels of participation are not anticipated.

Level one coordination activities included Federal, state, and local agencies that have broad regional interests, significant technical expertise, and important socio-political input. An informal guidance committee, consisting of the Corps of Engineers, the East-West Gateway Coordinating Council, St. Louis County, and Metropolitan St. Louis Sewer District met throughout the planning process to discuss the alternative plans and to provide input towards shaping the final recommendation.

Level two coordination activities included municipally elected officials, professional engineering and planning groups, and environmental groups. Meetings were held periodically to keep this level informed of the study progress.

Level three involved the directly affected individual citizen and neighborhood groups. Input from this level, as well as from levels one and two, was formally received at public meetings held on 14 June 1968, and 18 October 1972, and also informally received via numerous individual telephone and field contacts. The input obtained was essential in identifying problems, needs, impacts, and evaluations. Throughout the remainder of the study, meetings will be scheduled to inform the public of the events taking place and to ask for their opinions and comments.

b. *Significant Issues:* Significant issues addressed in the Draft Environmental Impact Statement will include: a description of soils, natural resources, wildlife and aquatic habitat, endangered species, linear park development, archeological and historical sites, and analysis of the impact on the environment regarding the proposed action.

c. *Lead Agency:* The St. Louis District, U.S. Army Corps of Engineers, is the lead agency responsible for the preparation of the Draft Environmental Impact Statement.

d. *Environmental Review and Consultation Requirements:* The



completed Draft Environmental Impact Statement will be distributed to the appropriate Federal, state, and local agencies, representatives of environmental groups, and other interested individuals. This Draft Environmental Impact Statement will contain records of compliance with designated comments found applicable during the course of this study.

4. *Scoping Meetings:* Separate scoping meetings will not be held for this project because of the projects advanced planning stage. Public meetings and workshops, and meetings with Federal, state, and local agencies as well as with representatives of environmental groups, have been an integral part of the planning process and informational meetings will continue throughout the duration of the study.

5. *Draft Environmental Impact Statement Preparation:* The Draft Environmental Impact Statement is tentatively scheduled to be completed in the first quarter of FY 80 (December, 1979).

**ADDRESS:** Questions about the proposed action and the Draft Environmental Impact Statement can be answered by: Mr. Jack F. Rasmussen, ED-B, U.S. Army Engineer District, St. Louis, 210 North 12th Street, St. Louis, Missouri 63101.

Dated: October 29, 1979.

Robert J. Dacey,

Colonel, CE, District Engineer.

[FR Doc. 79-34086 Filed 11-2-79; 8:45 am]

BILLING CODE 3710-GS-M

## Office of the Secretary

### Medical Reimbursement Rates for Fiscal Year 1980; Inpatient and Outpatient Medical Care

Notice is hereby given that the Assistant Secretary of Defense (Comptroller) on October 15, 1979 issued the following memorandum to the Assistant Secretaries of the Army (IL&FM), Navy (FM) and Air Force (FM):

Reimbursement rates for inpatient and outpatient medical care are hereby established for Fiscal Year 1980 as follows:

	Inter- agency <sup>1</sup>	Others	IMET <sup>2</sup>
Per Inpatient day:			
General medical and dental care .....	\$253.00	\$298.00	\$132.00
Burn Center, Brooke Army Hospital .....	689.00	823.00	393.00
Mental Health Center, Corazal, Panama .....	101.00	110.00	101.00
Per outpatient visit .....	25.00	29.00	13.00
Per FAA Air Traffic Controller Examination .....	55.00		

<sup>1</sup> Other Federal Agency sponsored patients and Government civilian employees and their dependents overseas.

<sup>2</sup> International Military Education and Training Students.

H. E. Lofdahl,

Director, Correspondence and Directives,  
Washington Headquarters Services,  
Department of Defense.

October 31, 1979.

[FR Doc. 79-34138 Filed 11-2-79; 8:45 am]

BILLING CODE 3810-70-M

## DEPARTMENT OF ENERGY

### National Petroleum Council, Task Group of the Committee on Unconventional Gas Sources; Meeting

Notice is hereby given that a task group of the Committee on Unconventional Gas Sources will meet in November 1979. The National Petroleum Council was established to provide advice, information, and recommendations to the Secretary of Energy on matters relating to oil and natural gas or the oil and natural gas industries. The Committee on Unconventional Gas Sources will analyze the potential constraints in these areas which may inhibit future production and will report its findings to the National Petroleum Council. Its analysis and findings will be based on information and data to be gathered by various task groups. The task group scheduling a meeting is the Tight Gas Reservoirs Task Group. The time, location and agenda of the meeting follows:

The twelfth meeting of the Tight Gas Reservoirs Task Group will be held on Wednesday, November 28, 1979, starting at 1:00 p.m., and Thursday, November 29, 1979, starting at 8:30 a.m., Conference Room C-1329, Mobil Oil Corporation, 1201 Elm Street, Dallas, Texas.

The tentative agenda for the meeting follows:

1. Introductory remarks by Chairman and Government Cochairman.
2. Discussion of the report outline of the Tight Gas Reservoirs Task Group.
3. Review the preliminary results of the Tight Gas Reservoirs Task Group.
4. Review of the Tight Gas Reservoirs Task Group's assignments.
5. Discussion of any other matters pertinent to the overall assignment of the Tight Gas Reservoirs Task Group.

The meeting is open to the public. The Chairman of the task group is empowered to conduct the meeting in a fashion that will, in his judgement, facilitate the orderly conduct of business. Any member of the public who wishes to file a written statement with the task group will be permitted to do so, either before or after the meeting. Members of the public who wish to

make oral statements should inform Lucio A. D'Andrea, Office of Resource Applications, 202/633-9482, prior to the meeting and reasonable provision will be made for their appearance on the agenda.

Summary minutes of the meeting will be available for public review at the Freedom of Information Public Reading Room, Room GA 152, DOE, Forrestal Building, 1000 Independence, SW., Washington, D.C., between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

Issued at Washington, D.C. on October 19, 1979.

R. Dobie Langenkamp,

Deputy Assistant Secretary, Oil, Natural Gas and Shale Resources, Resource Applications,  
October 19, 1979.

[FR Doc. 79-34094 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

### Proposed Remedial Order to Exxon Co., U.S.A.

**AGENCY:** Department of Energy.

**ACTION:** Notice of Proposed Remedial Order to Exxon Company, U.S.A. and Opportunity for Objection.

Pursuant to 10 CFR 205.192(c), the Office of Special Counsel for Compliance of the Economic Regulatory Administration (ERA), Department of Energy, hereby gives notice of a Proposed Remedial Order issued to Exxon Company, U.S.A., 800 Bell Street, Houston, Texas 70002. The Proposed Remedial Order sets forth findings of fact and conclusions of law concerning Exxon's carryover (banking) of price premiums for benzene and toluene, in violation of 10 CFR 212.82(f)(3) and 212.83(d)(2), of the Mandatory Petroleum Price Regulations. During the period in which the violation occurred, February through May 1974, refiners were permitted to add to the maximum lawful selling price (base price) of benzene an extra per gallon amount of up to 33.7 cents, and to add to the base price of toluene an extra per gallon amount of up to 28.8 cents. During the months in question Exxon did not pass through the entire amount of such price premiums due to pre-existing contracts which limited its selling prices for benzene and toluene. However, Exxon improperly treated such unused premiums as unrecovered costs which could be carried forward for recovery in subsequent months' sales of covered products other than special products. As a result, Exxon overstated its banks for such products in the amount of \$3,952,000.



In accordance with 10 CFR 205.192(c), any person may obtain a copy of the Proposed Remedial Order, with confidential information, if any, deleted from the ERA.

On or before November 20, 1979, any aggrieved person may file a Notice of Objection in accordance with 10 CFR 205.193. Such Notice should be filed with:

Office of Hearings and Appeals  
Department of Energy, Room 8014, 2000 M  
Street, NW., Washington, D.C. 20461.

Copies of the Proposed Remedial Order may be obtained by written request addressed to:

Milton Jordan, Director, Division of  
Freedom of Information and Privacy Act  
Activities, Forrestal Building, Room GB-145,  
1000 Independence Avenue, SW.,  
Washington, D.C. 20585, Attention: George  
W. Young, Jr.

Copies of the Proposed Remedial Order may be obtained in person from:

Office of Freedom of Information, Reading  
Room, Forrestal Building, Room GA-152, 1000  
Independence Avenue, SW., Washington,  
D.C. 20585.

Issued: in Washington, D.C., October 23,  
1979.

Paul L. Bloom,  
*Special Counsel for Compliance.*

[FR Doc. 79-34147 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

## Office of Special Counsel

[Case No. RGFM 00052]

### Consent Order With Gulf Oil Corp.

**AGENCY:** Department of Energy.

**ACTION:** Notice of Proposed Consent Order and Opportunity for Public Comment.

**SUMMARY:** Pursuant to 10 CFR 205.199J, The Office of Special Counsel (OSC) of the Department of Energy hereby gives notice that it entered into a Consent Order with The Gulf Oil Corporation on September 10, 1979. The Consent Order addresses Gulf's pricing practices in the Commonwealth of Puerto Rico for the period January 15, 1974, through April 15, 1974. In the Consent Order Gulf agrees to refund approximately \$1,618,884.00 plus interest to certain customers in the Commonwealth of Puerto Rico. In addition, Gulf agreed to pay the sum of \$10,000 in compromise and settlement of all civil and criminal penalty claims, which may arise against Gulf by reason of the alleged violation of DOE regulations settled by the terms of this Consent Order.

As required by 10 CFR 205.199J, OSC will receive comments concerning the

Consent Order for a period of at least 30 days following publication of this notice. Although the Consent Order has been signed and accepted by the parties, OSC may, after consideration of the comments received, withdraw its acceptance to the Consent Order, attempt to negotiate a modification of the Consent Order, or make the Consent Order final as proposed.

#### COMMENTS AND FURTHER INFORMATION:

Comments received on or before December 5, 1979, will be considered. Comments and questions concerning the Consent Order should be addressed to: Elizabeth Sampath, Esq., Department of Energy, Office of Special Counsel, 1421 Cherry Street, Philadelphia, PA 19102. Copies of the Consent Order may be received by written request at the Freedom of Information Reading Room, Forrestal Building, 1000 Independence Avenue, S.W., Room GA-152.

**SUPPLEMENTARY INFORMATION:** The Gulf Oil Corporation is a refined subject to refined pricing regulations of 10 CFR 212.83. These regulations are used to determine, among other things, the proper measurement of product and non-product costs that a refiner is permitted to pass through in its sales of covered products.

The Commonwealth of Puerto Rico was subject to the DOE Mandatory Petroleum Pricing Regulations from January 15, 1974, forward. DOE alleges that Gulf did not treat its operations in the Commonwealth of Puerto Rico as being subject to DOE regulations until April 5, 1974. OSC and Gulf have found it possible to resolve this matter through the consent Order as executed with Gulf.

#### The Consent Order

The significant terms of the Consent Order are as follows:

(1) Gulf agrees to refund directly to those identifiable customers who purchased gasoline, diesel fuel, kerosene, and residual fuel oil from Gulf's subsidiaries during this period of time, an amount equal to the difference between the actual price charged by Gulf's subsidiaries to each such customer and a selling price based upon Gulf's May 15, 1973 selling price to the class of purchaser concerned plus its announced passthroughs for the period of January 15-April 4, 1974.

(2) Gulf agrees that the following mechanism shall be utilized for refunding monies to: (a) Service station dealers who are not now Gulf customers and (b) Service station dealers who cannot be identified or located.

(i) Gulf shall place the monies in a separate, internal account and compute

interest at the rates indicated in (3) below.

(ii) Gulf will attempt to locate affected service station dealers by advertising once a week for a period of four weeks from the effective date of the Consent Order in a widely circulated newspaper in Puerto Rico;

(iii) If the former Gulf service station dealer is not now in business as a dealer, in order to receive a refund, he will have to sign a statement to the effect that during the period in question he sold gasoline at less than his maximum allowable price and absorbed cost equal to the amount of money refunded to him; and

(iv) At the end of a 90-day period after the last newspaper advertisement has been published, Gulf shall distribute any monies remaining in the account to all current Gulf service station dealers located in the Commonwealth of Puerto Rico.

(3) Gulf agrees to pay interest on the amount refunded in (1) and (2). Interest will be computed on refunds as follows:

(i) Six percent (6%) on amounts outstanding from November 1, 1973, through June 30, 1975.

(ii) Nine percent (9%) on amounts outstanding from July 1, 1975, through January 31, 1976.

(iii) Seven percent (7%) on amounts outstanding from February 1, 1976 through January 31, 1978.

(iv) Six percent (6%) on amounts outstanding from February 1, 1978, to the date the refund is made.

(4) Gulf offers and DOE accepts on behalf of the United States the sum of Ten Thousand and No/100 Dollars (\$10,000.00) in compromise and settlement of all criminal and civil penalty claims of the United States which may arise against Gulf by reason of the alleged violations of DOE regulations settled by the terms of this Consent Order.

(5) The provisions of 10 CFR 205.199J, including the publication of this notice, are applicable to the Consent Order

#### Submission of Written Comments

Interested persons are invited to comment on this consent Order by submitting such comments in writing to the address noted above. Comments should be identified on the outside of the envelope and on documents submitted with the designation. "Comments on Gulf Puerto Rican Consent Order". All comments received on or before December 5, 1979, will be considered by OSC in evaluating the Consent Order. Modifications of the Consent Order, which in the opinion of OSC, significantly change the terms or

impact of the Consent Order will be published for comment.

Any information or data which, in the opinion of the person furnishing it, is confidential, must be identified as such and submitted in accordance with the procedures of 10 CFR 205.9(f).

Issued in Washington, D.C. October 12, 1979.

Paul L. Bloom,

*Special Counsel for Compliance.*

[FR Doc. 79-34092 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

## Economic Regulatory Administration

[ERA Docket No. 79-CERT-094]

### C. F. Industries, Inc.; Certification of Eligible Use of Natural Gas To Displace Fuel Oil

C. F. Industries, Inc. filed an application for certification of an eligible use of natural gas to displace fuel oil at its Tunis, North Carolina, Nitrogen Complex, with the Administrator of the Economic Regulatory Administration (ERA) pursuant to 10 CFR Part 595 on September 19, 1979. Notice of that application was published in the Federal Register (44 FR 56396, October 1, 1979) and an opportunity for public comment was provided for a period of ten (10) calendar days from the date of publication. No comments were received.

The ERA has carefully reviewed C. F. Industries' application in accordance with 10 CFR Part 595 and the policy considerations expressed in the Final Rulemaking Regarding Procedures for Certification of the Use of Natural Gas to Displace Fuel Oil (44 FR 47920, August 16, 1979). The ERA has determined that C. F. Industries' application satisfies the criteria enumerated in 10 CFR Part 595; and, therefore, has granted the certification and transmitted that certification to the Federal Energy Regulatory Commission. A copy of the transmittal letter and the actual certification are appended to this notice.

Issued in Washington, D.C. October 18, 1979.

Doris J. Dewton,

*Assistant Administrator, Office of Petroleum Operations, Economic Regulatory Administration.*

Certification by the Economic Regulatory Administration to the Federal Energy Regulatory Commission of the Use of Natural Gas for Fuel Oil Displacement by the C. F. Industries, Inc.

ERA Docket No. 79-CERT-094

#### Application for Certification

Pursuant to 10 CFR Part 595, C. F. Industries, Inc. filed an application for certification of an eligible use of approximately 2,500 Mcf of natural gas per day at its Tunis, North Carolina, Nitrogen Complex, with the Administrator of the Economic Regulatory Administration (ERA) on September 19, 1979. The application states that the eligible sellers of the gas are Louisiana Resources Company, One Willimas Center, P.O. Box 3102, Tulsa, Oklahoma 74101, and McRae Exploration, Inc., Suite 800, Dresser Tower, 601 Jefferson, Houston, Texas 77002, and that the gas will be transported by the Transcontinental Gas Pipe Line Corporation, P.O. Box 1396, Houston, Texas 77001. The application and supplemental information indicate, among other things, that use of natural gas will displace approximately 18,000 gallons of No. 2 fuel oil (0.3% sulfur) per year and that neither the gas nor the displaced fuel oil will be used to displace coal in the applicant's facilities.

#### Certification

Based upon a review of the information contained in the application, as well as other information available to ERA, the ERA hereby certifies, pursuant to 10 CFR Part 595, that the approximate 2,500 Mcf of natural gas per day purchased from Louisiana Resources Co. and McRae Exploration, Inc., and used by C. F. Industries, Inc., is an eligible use of gas within the meaning of 10 CFR Part 595.

#### Effective Date

This certification is effective upon the date of issuance, and expires one year from that date, unless a shorter period of time is required by 18 CFR Part 284, Subpart F. It is effective during this period of time for the use of up to the same certified volumes of natural gas at the same facilities purchased from the same eligible seller.

Issued in Washington, D.C. on October 18, 1979.

Doris J. Dewton,

*Assistant Administrator, Office of Petroleum Operations, Economic Regulatory Administration.*

Department of Energy,

Washington, D.C. October 30, 1979.

Mr. Kenneth F. Plumb,

*Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street NE., Washington, D.C.*

Re ERA Certification of Eligible Use ERA Docket No. 79-CERT-094 C. F. Industries, Inc.

Dear Mr. Plumb: Pursuant to the provisions of 10 CFR Part 595, I am hereby transmitting to the Commission the enclosed certification

of an eligible use of natural gas to displace fuel oil. This certification is required by the Commission as a precondition to interstate transportation of fuel oil displacement gas in accordance with the authorizing procedures in 18 CFR Part 284, Subpart F (FERC Order No. 30, 44 FR 30323, May 25, 1979). As noted in the certificate, it is effective for one year from the date of issuance, unless a shorter period of time is required by 18 CFR Part 284, Subpart F. A copy of the enclosed certification is also being published in the Federal Register and provided to the applicant.

Should the Commission have any further questions, please contact Mr. Finn K. Neilson, Director, Import/Export Division, Economic Regulatory Administration, 2000 M Street, N.W., Room 4126, Washington, D.C. 20461, telephone (202) 254-8202. All correspondence and inquiries regarding this certification should reference ERA Docket No. 79-CERT-094.

Sincerely,

Doris J. Dewton,

*Assistant Administrator, Office of Petroleum Operations, Economic Regulatory Administration.*

[FR Doc. 79-34093 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

[ERA Case No. 50904-6223-22-77]

### Empire District Electric Co.

**AGENCY:** Economic Regulatory Administration, Department of Energy.

**ACTION:** Notice of request for classification.

**SUMMARY:** On June 7, 1979, The Empire District Electric Company (Empire) requested the Economic Regulatory Administration (ERA) of the Department of Energy (DOE) to classify Energy Center Unit 2 (Unit 2) as an existing facility pursuant to § 515.8 of the Revised Interim Rule to Permit Classification of Certain Powerplants and Installations as Existing Facilities (Revised Interim Rule), 10 CFR 515.8, issued by ERA on March 15, 1979 (44 FR 17464) and pursuant to the provisions of the Powerplant and Industrial Fuel Use Act of 1978, 42 U.S.C. 8301 *et seq.* (FUA). FUA imposes certain statutory prohibitions against the use of natural gas and petroleum by new and existing electric powerplants. ERA's decision in this matter will determine whether Unit 2 is a new or existing powerplant. The prohibitions which apply to existing powerplants are different from those which apply to new powerplants. The purpose of this Notice is to invite interested persons to submit written

comments on this matter prior to the issuance of a final decision by ERA. in accordance with 10 CFR 515.26, no public hearings will be held.

**DATES:** Written comments are due on or before November 26, 1979.

**ADDRESSES:** Ten copies of written comments will be submitted to: Department of Energy, Case Control Unit, Box 4629, Room 2313, 2000 M Street NW., Washington, D.C. 20461.

**FOR FURTHER INFORMATION CONTACT:**

William L. Webb, (Office of Public Information), Economic Regulatory Administration, Department of Energy, 2000 M Street NW., Room B-110, Washington, D.C., Phone (202) 634-2170  
James W. Workman, Director, Division of Existing Facilities Conversion, Economic Regulatory Administration, Department of Energy, 2000 M Street NW., Room 3128L, Washington, D.C., Phone (202) 254-7442  
G. Randolph Comstock (Office of the General Counsel), Room 6G-087, 1000 Independence Ave. SW., Washington, D.C., Phone (202) 252-2967

Robert L. Davies, Acting Assistant Administrator, Office of Fuels Conversion, Economic Regulatory Administration, 2000 M Street NW., Room 3128L, Washington, D.C., Phone: (202) 634-6557

**SUPPLEMENTARY INFORMATION:**

The Empire District Electric Company (Empire) is a corporation organized under the laws of the State of Kansas. Empire supplies electric service within all or certain portions of seventeen counties in Southwest Missouri, one county in Arkansas, two counties in Kansas and three counties in Oklahoma.

Empire stated that it executed a contract in September 1976, for the construction of a 90 MW, No. 2 fuel oil-fired combustion turbine, to be known as Energy Center Unit 2 (Unit 2) in Jasper County, Missouri, and that commercial operation is scheduled for June 1981.

On June 7, 1979, pursuant to ERA's Revised Interim Rule, 10 CFR Part 515, issued by ERA on March 15, 1979, Empire requested that ERA classify Unit 2 as an "existing" facility. In accordance with 10 CFR § 515.6 a powerplant will be classified as existing if the cancellation, rescheduling or modification of the construction or acquisition of a powerplant would result in a substantial financial penalty or an adverse effect on the electric system reliability. Empire supported its request for classification by providing evidence that it would suffer both a substantial financial penalty and a significant impairment of reliability, if Unit 2 was not permitted to proceed as an oil-burning facility. A summary of the evidence requirements and Empire's response to those requirements follows:

**Substantial financial penalty**—Pursuant to 10 CFR 515.6(a), ERA will classify a facility as existing upon a demonstration that at least 25 percent of the total projected project cost, as of November 9, 1978, was expended in nonrecoverable outlays.

In response to the requirements of 10 CFR 515.7(b)(1), Empire provided the following information:

Total projected project costs as of Nov. 9, 1978	\$18,172,184
Total project expenditures, including obligation and cancellation charges, as of Nov. 9, 1978	\$10,407,184
Total recoverable expenditures	\$1,618,000
Total nonrecoverable outlays	\$8,789,184
Nonrecoverable outlays (percent of total project expenditures as of Nov. 9, 1978)	48

In addition, Empire states that if it were forced to resell Unit 2, Empire would incur penalties in the 1981-1985 period of \$10,088,000 in order to meet its customer's requirements and maintain its 15 percent reserve margin as required by the Missouri Kansas Pool (MOKAN).

**Adverse affect on electric system reliability**—Pursuant to 10 CFR 515.6(b), ERA will classify a facility as existing upon a demonstration that the reserve margin in the electric region in which the powerplant will be located would be reduced to less than 20 percent during the 12-month period, after the proposed powerplant is to begin operation, assuming that the proposed powerplant is not completed. Demonstration of an adverse affect on the utility's ability to provide service during the 12-month period following scheduled operation and/or an adverse effect on reliability after the 12-month period may also be made.

In response to the requirements of 10 CFR 515.7(c)(1), Empire provided the following information.

Description of Empire's service area; list of interconnections with other utilities; projection of peak load for Empire's system through 1985 and for MOKAN through 1982;

Reserve margins for MOKAN during the 12-month and 24-month periods following the projected operational date for Unit 2 are 17.3% and 16%, respectively;  
Reserve margins for Empire's system by itself range from 6% to negative reserves for the 1981-1985 period.

ERA hereby invites all interested persons to submit written comments on this matter.

The public file, containing Empire's request for classification and supporting materials is available for inspection upon request at: ERA, Room B-110, 2000 M Street NW., Washington, D.C. 20461, Monday-Friday, 8:00 a.m.-4:30 p.m.

Issued in Washington, D.C., on October 28, 1979.

Robert L. Davies,  
*Acting Assistant Administrator, Office of Fuels Conversion, Economic Regulatory Administration.*

[FR Doc. 79-34063 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

**Delta Drilling Co.; Action Taken on Consent Order**

**AGENCY:** Economic Regulatory Administration, Department of Energy.

**ACTION:** Notice of Action taken and opportunity for comment on Consent Order.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) announces action taken to execute a Consent Order and provides an opportunity for public comment on the Consent Order and on potential claims against the refunds deposited in an escrow account established pursuant to the Consent Order.

**DATES:** Effective date: October 26, 1979. Comments by: December 5, 1979.

**ADDRESS:** Send comments to: Wayne I. Tucker, District Manager of Enforcement, Southwest District Office, Department of Energy, P.O. Box 35228, Dallas, Texas 75235.

**FOR FURTHER INFORMATION CONTACT:** Wayne I. Tucker, District Manager of Enforcement, Southwest District Office, Department of Energy, P.O. Box 35228, Dallas, Texas 75235, Phone 214/767-7745.

**SUPPLEMENTARY INFORMATION:** On October 26, 1979, the Office of Enforcement of the ERA executed a Consent Order with Delta Drilling Company of Tyler, Texas. Under 10 CFR 205.199(j)(b), a Consent Order which involves a sum of less than \$500,000 in the aggregate, excluding penalties and interest, becomes effective upon its execution.

Because the DOE and Delta Drilling Company wish to expeditiously resolve this matter as agreed and to avoid delay in the payment of refunds, the DOE has determined that it is in the public interest to make the Consent Order with Delta Drilling Company effective as of the date of its execution by the DOE and Delta Drilling Company.

**I. Consent Order**

Delta Drilling Company with its home office in Tyler, Texas is a firm engaged in the production and sale of crude oil and is subject to the Mandatory Petroleum Price and Allocation Regulations at 10 CFR, Part 210, 211, 212.

The Office of Enforcement of the Economic Regulatory Administration (ERA) and Delta Drilling Company entered into a Consent Order to resolve certain civil actions which could be brought by ERA as a result of its audit of the crude oil sales by Delta Drilling Company. This Consent Order settles those matters relative to Delta Drilling Company's production and sale of crude during the period September 1, 1973 through June 30, 1977.

The significant terms of the Consent Order with Delta Drilling Company are as follows:

1. Delta Drilling Company allegedly applied the provisions of 10 CFR 212.73 and its predecessor, 6 CFR 150.353 incorrectly when determining the prices to be charged for certain domestic crude oil.

2. Delta understands and agrees to refund \$275,000.00 to the DOE by certified check. This amount is in full settlement of any and all civil liability within the jurisdiction of the DOE in regard to actions that might be brought by the DOE arising out of the specified transactions for the following properties:

G. A. Blalock 02875  
W. H. Coker 01355 & 00041  
Lou Della Crim 06521  
Dermont Foster 01361 & 00041  
Dermont Foster #5 44240  
Charles G. Hooks et al 00216  
J. J. Morris "A" 33283  
Sawyer "A" 31472  
J. B. Tubb Estate 52292  
Davidson "15"  
Meadows #1 6411 Sta. #107  
Friend "C" #1  
Meadows "A" 6467  
Meadows "48" #1 6469 Sta. #159  
Kincaid "A" #1 6459  
Meadows "1" #1 6471  
Meadows "B" #1 6495 Sta. #187  
Chandler #1 6457 Sta. #150  
J. A. Blalock "B" 1329-16522  
Ozona B Unit & Helbing "14" #1

3. The provisions of 10 CFR 205.199j, including the publication of this Notice, are applicable to the Consent Order.

## II. Disposition of Refunded Overcharges

Refunded overcharges as described in 2. above will be made in four installments. The first payment is due 90 days after the Office of Hearings and Appeals adopts the Office of Enforcement's Petition for the Implementation of Special Refund Procedures and each 90 days thereafter until the total refund has been completed. Delivery of such payments shall be to the Assistant Administrator for Enforcement, Economic Regulatory Administration, in the form of a certified check made payable to the United States Department of Energy.

The DOE intends to distribute the refund amounts in a just and equitable manner in accordance with applicable laws and regulations. Accordingly, distribution of such refunded overcharges requires that only those "person" (as defined at 10 CFR 205.2) who actually suffered a loss as a result of the transactions described in the Consent Order receive appropriate refunds. Because of the petroleum industry's complex marketing system, it is likely that overcharges have either been passed through as higher prices to subsequent purchasers or offset through devices such as the Old Oil Allocation (Entitlements) Program, 10 CFR 211.67. In fact, the adverse effects of the overcharges may have become so diffused that it is a practical impossibility to identify specific, adversely affected person, in which case disposition of the refunds will be made in the general public interest by an appropriate means such as payment to the Treasury of the United States pursuant to 10 CFR 205.199(a).

## III. Submission of Written Comments

**Potential Claimants:** Interested persons who believe that they have a claim to all or a portion of the refund amount should provide written notification of the claim to the ERA at this time. Proof of claims is not now being required. Written notification to the ERA at this time is requested primarily for the purpose of identifying valid potential claims to the refund amount. After potential claims are identified, procedures for the making of proof of claims may be established. Failure by a person to provide written notification of a potential claim within the comment period for this Notice may result in the DOE irrevocably disbursing the funds to other claimants or to the general public interest.

**Other Comments:** The ERA invites interested persons to comment on the terms, conditions, or procedural aspects of this Consent Order.

You should send your comments or written notification of a claim to Wayne I. Tucker, District Manager of Enforcement, Southwest District Office, Department of Energy, P.O. Box 35228, Dallas, Texas 75235. You may obtain a free copy of this Consent Order by writing to the same address or by calling 214/767-7745.

You should identify your comments or written notification of a claim on the outside of your envelope and on the documents you submit with the designation, "Comments on Delta Drilling Company's Consent Order." We will consider all comments we receive by 4:30 p.m. local time, within 30 days

after this publication. You should identify any information or data which, in your opinion, is confidential and submit it in accordance with the procedures in 10 CFR 205.9(f).

Issued in Dallas, Texas on the 26th day of October 1979.

Wayne I. Tucker,  
District Manager of Enforcement, Southwest District Office, Economic Regulatory Administration.

[FR Doc. 79-34148 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M

## ENVIRONMENTAL PROTECTION AGENCY

[FRL 1351-71]

### ANR Storage Co., Cold Springs Township, Mich.; Final Determination

In the matter of the applicability of Title I, Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 26388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSC), to ANR Storage Company (ANR), Cold Springs Township, Michigan.

On June 6, 1979, ANR submitted an application to the United States Environmental Protection Agency (U.S. EPA) Region V office, for an approval to construct and develop the Cold Springs 12 Field as a Natural Gas Storage Field which will include compressors and appurtenances to provide long term storage and distribution for several gas companies. Additional information was submitted on October 23, 1978, and December 5, 1978. The application was submitted pursuant to the regulations for PSD.

On January 3, 1979, ANR was notified that its application was complete and preliminary approval was granted.

On March 26, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to ANR. They were only explanatory comments from ANR during the comment period. No request for a public hearing were received.

After review and analysis of all materials submitted by ANR, the Company was notified on October 2, 1979, that the U.S. EPA had determined that the proposed new construction in Cold Springs Township, Michigan would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality, as required by Section 165 of the Act.

This approval to construct does not relieve ANR of the responsibility to comply with the control strategy and all

local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1) petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V, U.S. EPA, 230 South Dearborn Street, Chicago, Illinois 60604 (312) 353-2090.

John McGuire,  
Regional Administrator, Region V.

#### Approval To Construct EPA-5-A-80-1

In the Matter of ANR Storage Company, Cold Springs Township, Michigan; Proceeding Pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. The ANR Storage Company (ANR) proposes to construct and develop the Cold Springs 12 Field as a Natural Gas Storage Field which will include compressors and appurtenances to provide long term storage and distribution for several gas companies. The field will be used as an underground natural gas storage reservoir.

2. The pumping station will be located in the rural area of Cold Springs Township in Kalkaska County, approximately 12.2 miles northeast of Kalkaska, Michigan. Kalkaska County is a Class II area for PSD review, as determined pursuant to the Act.

3. The proposed natural gas compressor station is subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act. The proposed source is *not* subject to the Interpretative Ruling (41 FR 3274, January 16, 1979) due to the attainment designation of the construction site and source impact area.

4. The PSD application from ANR was received on June 6, 1978, a deficiency notice was sent to ANR on August 29, 1978, additional information was received from ANR on October 23, 1978 and December 5, 1978. The application was determined complete on December 5, 1978. On January 3, 1979, preliminary approval was issued to ANR. On March 26, 1979, notice was published in the *Record Eagle* seeking written comments from the public and giving an opportunity to request a public hearing on the application and the U.S. Environmental Protection Agency's (U.S. EPA) preliminary

approval of the proposed construction. There were only explanatory comments from ANR during the comment period. No requests for a public hearing were received.

5. After review and analysis of all materials submitted by ANR, U.S. EPA has determined that emissions from the construction and operation of the natural gas compressor station at the ANR proposed site in Cold Springs Township will not violate the air quality increments applicable in the area nor will it violate the air quality increment applicable in any other area.

6. The compressors are to be powered by three 3,750 horsepower natural gas internal combustion reciprocating engines. Potential NO<sub>x</sub> emissions from the use of these engines will exceed 1,700 tons/year. Potential hydrocarbon emissions will be 88 tons/year and potential carbon monoxide emissions will be 136 tons/year.

7. There are presently no established control techniques to minimize NO<sub>x</sub> emissions from natural gas fueled reciprocating internal combustion engines. U.S. EPA issued a draft summary of recommended New Source Performance Standards (NSPS). The proposed standard will be published in the Federal Register in the near future. NSPS for internal combustion reciprocating engines will not be effective for approximately four years.

#### Conditions

8. ANR shall use no more than three 3,750 HP Ingersol-Rand natural gas-fired internal combustion reciprocating engines.

9. The maximum allowable emission rate for each of the above-named engines shall be as follows:

NO <sub>x</sub> _____	12.0 gm/HP hour.
HC (non-methane) _____	0.8 gm/HP hour.
CO _____	1.25 gm/HP hour.

#### Approval

10. Approval to construct a natural gas compressor storage station is hereby granted to ANR subject to the conditions expressed herein and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval or the terms expressed in ANR's application must receive the prior written authorization of U.S. EPA.

11. This approval to construct does not relieve ANR of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable local, State and Federal requirements.

12. This approval is effective immediately. This approval to construct shall become invalid if construction or expansion is not commenced within 18 months after receipt of this approval or if construction is discontinued for a period of 18 months or more. The administrator may extend such time period upon a satisfactory showing that an extension is justified. Written notification shall be made to U.S. EPA 5 days after construction is commenced.

13. A copy of this approval has been forwarded for public inspection to the Traverse City Public Library, 322 6th Street, Traverse City, Michigan 49684.

14. In addition, the United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1006 and consolidated cases) which has significant impact on the EPA Prevention of Significant Deterioration (PSD) program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulations and could affect approvals issued under the existing program. Examples of potential impact areas include the scope of best available control technology (BACT), source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is hereby advised that this approval may be subject to reevaluation as a result of the final court decision and its ultimate effect.

Dated: October 1, 1979.

John McGuire,  
Regional Administrator.

[FR Doc. 79-34106 Filed 11-2-79; 8:45 am]  
BILLING CODE 5560-01-M

#### [FRL 1351-5]

#### B. F. Goodrich Co.; Mount Zion, Ill.; Final Determination

In the matter of the applicability of Title I, Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 26388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSD), to B.F. Goodrich Company, Henry, Illinois.

On February 23, 1979, the B.F. Goodrich Company submitted an application to the United States Environmental Protection Agency (U.S. EPA), Region V office for an approval to construct a chemical process plant in Henry, Illinois. The application was submitted pursuant to the regulations for PSD.

On June 5, 1979, Goodrich Company was notified that its application was complete and preliminary approval was granted.

On July 27, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to B.F. Goodrich Company. No comments or request for a public hearing were received.

After review and analysis of all materials submitted by the B.F. Goodrich Company, the Company was notified on September 7, 1979, that the U.S. EPA had determined that the proposed new construction in Henry, Illinois, would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality, as required by Section 165 of the Act.

This approval to construct does not relieve B.F. Goodrich Company of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1) petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V, U.S. EPA, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2090.

John McGuire,  
Regional Administrator, Region V.

#### Approval To Construct EPA-5-A-79-28

In the matter of The B. F. Goodrich Company, Chemical Process Plant, Henry, Ill., proceeding pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal Regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. The B. F. Goodrich Company proposes to construct a chemical process plant in Henry, Illinois.

2. Emissions from the process are volatile organic compounds (VOC) which are precursors to the formation of ozone (O<sub>3</sub>). The area where the B. F. Goodrich Company proposes to construct is a Class II area as determined pursuant to the Act and has been designated an unclassifiable area pursuant to Section 107 of the Act for ozone.

3. The proposed chemical process plant is subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act.

4. The B. F. Goodrich Company submitted a PSD application to the U.S. Environmental Protection Agency (U.S. EPA) on February 23, 1979. On June 5, 1979, the application was determined to be complete and preliminary approval was granted.

5. On June 27, 1979, notice was published in the *Peoria Journal-Star* and the *Henry News Republican*. The notice sought written comments from the public on the B. F. Goodrich Company's application and the U.S. EPA's preliminary approval of the proposed construction. There were no public comments and no requests for a public hearing.

6. After review and analysis of the material submitted by the B. F. Goodrich Company, U.S. EPA has determined that emissions from the chemical process plant will not violate

the National Ambient Air Quality Standards nor will it violate the air quality increments.

7. The proposed control equipment to be used by the B. F. Goodrich Company consists of a series of recovery condensers and a process boiler to be used for the combustion of VOC emissions. Its overall efficiency is close to 100 percent and it meets existing State regulations. Thus, the approximately 3,400 tons per year of VOC emissions will be reduced to an actual rate of less than 41 tons per year. The extent of the reduction to under 50 tons per year allows the applicant an exemption from further control and air quality analyses.

#### Conditions

8. The plant shall limit its actual emissions to less than 41 tons per year of VOC.

9. This control rate would become the quantity of emissions allowed under the construction permit granted by the Illinois EPA.

10. The B.F. Goodrich Company must construct and operate the chemical process plant in accordance with the descriptions presented in their final application for approval to construct. Any change in the design or operation might alter U.S. EPA's conclusion and therefore, any changes must receive the prior written authorization of U.S. EPA.

#### Approval

11. Approval to construct the chemical process plant is hereby granted to the B. F. Goodrich Company subject to the conditions expressed herein and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval or the terms expressed in the application, must receive the prior written authorization of U.S. EPA.

12. The United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1008 and consolidated cases) which has significant impact on the EPA prevention of significant deterioration (PSD) program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulations and could affect approvals issued under the existing program. Examples of potential impact areas include the scope of best available control technology (BACT), source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is hereby advised that this approval may be subject to reevaluation as a result of the final court decision and its ultimate effect.

13. This approval to construct does not relieve the B. F. Goodrich Company of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other Federal, State and local requirements.

14. A copy of this approval has been forwarded to the Henry Public Library, 702 Front Street, Henry, Illinois.

Dated: September 7, 1979.

John McGuire,  
Regional Administrator.

[FR Doc. 79-34108 Filed 11-02-79; 8:45 am]

BILLING CODE 6560-01-M

[FRL 1351-8]

#### Consolidation Coal Co.; Cadiz, Ohio; Final Determination

In the matter of the applicability of Title I, Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 26388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSD), to Consolidation Coal Company (Consol), Georgetown Coal Preparation Plant, Cadiz, Ohio.

On August 7, 1979, the B.F. Goodrich Company submitted an application to the United States Environmental Protection Agency (U.S. EPA), Region V office, for an approval to construct a fine coal thermal dryer. The application was submitted pursuant to the regulations for PSD.

On February 23, 1979, Consol was notified that its application was complete and preliminary approval was granted.

On April 19, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to Consol. No comments or request for a public hearing were received.

After review and analysis of all materials submitted by Consol, the Company was notified on September 26, 1979, that the U.S. EPA had determined that the proposed new construction in Cadiz, Ohio would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality as required by Section 165 of the Act.

This approval to construct does not relieve Consol of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1) petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V, U.S.



EPA, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2090.

John McGuire,  
Regional Administrator, Region V.

#### Approval To Construct EPA-5-A-79-29

In the matter of Consolidation Coal Company, Georgetown Coal Preparation Plant, Cadiz, Ohio, proceeding pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. The Consolidation Coal Company (Consol) proposes to construct a fine coal thermal dryer at its existing Midwestern Region Georgetown Plant located in Harrison County, approximately 2 miles East, Southeast of Cadiz, Ohio.

2. Harrison County is a Class II area as determined pursuant to the Act and has been designated an attainment area pursuant to Section 107 of the Act for total suspended particulate (TSP) and sulfur dioxide (SO<sub>2</sub>) and unclassifiable or better than the National Ambient Air Quality Standards (NAAQS) for the other criteria pollutants.

3. The proposed thermal dryer is subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act.

4. Consol submitted a PSD application to the U.S. Environmental Protection Agency (U.S. EPA) on August 7, 1978. On February 23, 1979, the application was determined to be complete and preliminary approval was granted.

5. On April 19, 1979, notice was published in *The Harrison News Herald*. The notice sought written comments from the public on Consol's application and the U.S. EPA's preliminary approval of the proposed construction and operation. There were no public comments and no requests for a public hearing.

6. After review and analysis of the material submitted by Consol, the U.S. EPA has determined that emissions from the construction and operation of the thermal coal dryer in Harrison County will not violate the applicable air quality increments in the area where the source will be located nor will it violate the NAAQS. Furthermore, emissions from the thermal dryer will be reduced by the application of the best available control technology (BACT).

#### Conditions

7. Particulate emissions from the thermal dryer shall not exceed 0.031 gr/DSCF.

8. Sulfur dioxide emissions from the thermal dryer shall not exceed 1.49 gr/DSCF.

9. Emissions of fugitive particulate matter shall be limited to 20% opacity from all conveyors, conveyor transfer points, storage facilities, loading and unloading operations and screening operations. Opacity shall be measured with methods specified in 40 CFR 60.254.

10. All haul roads shall be sprayed to reduce fugitive emissions to a minimum.

11. The pH of the slurry leaving the scrubber shall be continuously monitored and the slurry treated so as to eliminate desorption from the waste stream.

Conditions 7 through 11 represent the application of BACT as required by Section 165 of the Act.

12. The Consolidation Coal Company must construct and operate the thermal dryer in accordance with the descriptions presented in their final application for approval to construct. Any change in the design or operation might alter U.S. EPA's conclusion and therefore, any changes must receive the prior written authorization of U.S. EPA.

#### Approval

13. The United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1006 and consolidated cases) which has significant impact on the EPA prevention of significant deterioration (PSD) program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulations and could affect approvals issued under the existing program. Examples of potential impact areas include the scope of best available control technology (BACT), source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is hereby advised that this approval may be subject to reevaluation as a result of the final court decision and its ultimate effect.

14. This approval to construct does not relieve the Consolidation Coal Company of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other Federal, State and local requirements.

15. A copy of this approval has been forwarded to the Cadiz Public Library, Courthouse, Cadiz, Ohio for public inspection.

Date: September 26, 1979.

John McGuire,  
Regional Administrator.

[FR Doc. 79-34112 Filed 11-3-79; 8:45 am]

BILLING CODE 6550-01-M

#### [FRL 1351-3]

#### Consolidation Coal Co.; Perry County, Ill.; Final Determination

In the matter of the applicability of Title I Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 26388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSD), to Consolidation Coal Company (Consol) Burningstar No. 2 Preparation Plant, Perry County, Illinois.

On August 9, 1978, Consol submitted an application to the United States Environmental Protection Agency (U.S. EPA), Region V office, for an approval to construct a portable wet cleaning plant and thermal dryer. The application was submitted pursuant to the regulations for PSD.

On March 13, 1979, Consol was notified that its application was complete and preliminary approval was granted.

On April 13, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to Consol. No comments or request for a public hearing were received.

After review and analysis of all materials submitted by Consol, the Company was notified on September 26, 1979, that the U.S. EPA had determined that the proposed new construction in Perry County, Illinois would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality, as required by Section 165 of the Act.

This approval to construct does not relieve Consol of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1), petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V U.S. EPA, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2090.

John McGuire,  
Regional Administrator, Region V.

#### Approval To Construct EPA-5-A-79-30

In the matter of Consolidation Coal Company, Burning Star No. 2 preparation plant, Perry County, Ill., proceeding pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. The Consolidation Coal Company (Consol) proposes to construct and operate a portable wet cleaning plant and a thermal dryer at the Burning Star No. 2 mine

preparation plant in Perry County, approximately 5½ miles east of Pinkneyville, Illinois.

2. Perry County is a Class II area as determined pursuant to the Act and has been designated an attainment area pursuant to Section 107 of the Act for total suspended particulate (TSP) and sulfur dioxide (SO<sub>2</sub>) and unclassifiable or better than the National Ambient Air Quality Standards (NAAQS) for the other criteria pollutants.

3. The proposed thermal dryer is subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act.

4. Consol submitted a PSD application to the U.S. Environmental Protection Agency, (U.S. EPA) on August 9, 1978. On March 13, 1979, the application was determined to be complete and preliminary approval was granted.

5. On April 13, 1979, notice was published in the *Du Quoin Evening Call*. The notice sought written comments from the public on the Consol application and the U.S. EPA's preliminary approval of the proposed construction and operation. There were no public comments and no requests for a public hearing.

6. After review and analysis of the material submitted by Consol, the U.S. EPA has determined that emissions from the construction and operation of the coal thermal dryer and portable wet cleaning plant in Perry County will not violate the National Ambient Air Quality Standards nor will it violate the air quality increments. Furthermore, emissions from the facility will be reduced by the application of the best available control technology (BACT).

#### Conditions

7. Particulate emissions from the thermal dryer shall not exceed 0.031 gr/DSCF.

8. Emissions of fugitive particulate matter shall be limited to 20% opacity from all conveyors, conveyor transfer points, storage facilities, loading and unloading operations and screening operations. Opacity shall be measured with methods specified in 40 CFR 60.254.

9. All haul roads shall be sprayed to reduce fugitive emissions to a minimum.

10. Sulfur dioxide emissions from the thermal dryer shall not exceed 1.58 gr/DSCF.

11. The pH of the slurry leaving the scrubber shall be continuously monitored and the slurry treated so as to eliminate desorption from the waste stream.

Conditions 7 through 11 represent the application of BACT as required by Section 165 of the Act.

12. The Consolidation Coal Company must construct and operate the thermal dryer and wet cleaning plant in accordance with the description presented in their final application for approval to construct. Any change in the design or operation might alter U.S. EPA's conclusion and therefore, any changes must receive the prior written authorization of U.S. EPA.

13. The United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1008 and consolidated cases) which has significant impact on the EPA Prevention of Significant Deterioration (PSD)

program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulation and could affect approval issued under the existing program. Examples of potential impact areas include the scope of best available control technology (BACT), source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is hereby advised that this approval may be subject to reevaluation as a result of the final court decision and its ultimate effect.

14. This approval to construct does not relieve the Consolidation Coal Company of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other Federal, State and local requirements.

15. A copy of this approval has been forwarded to the DuQuoin Public Library, 9 South Washington, DuQuoin, Illinois, for public inspection.

Date: September 28, 1979.

John McGuire,  
Regional Administrator.

[FR Doc. 79-34109 Filed 11-2-79; 8:45 am]

BILLING CODE 6560-01-M

#### [FRL 1351-6]

#### Knauf Fiber Glass GmbH, Shelbyville, Ind.; Final Determination

In the matter of the applicability of Title I, Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 26388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSD), to Knauf Fiber Glass GmbH (Knauf) Manufacturing Line No. 602, Shelbyville, Indiana.

On December 6, 1979, Knauf submitted an application to the United States Environmental Protection Agency (U.S. EPA), Region V office for an approval to construct a fiber glass insulation manufacturing line. On March 14, 1979, and June 8, 1979, additional information was sent. The application was submitted pursuant to the regulations for PSD.

On June 19, 1979, Knauf was notified that its application was complete and preliminary approval was granted.

On August 13, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to Knauf. No comments or request for a public hearing were received.

After review and analysis of all materials submitted by Knauf, the Company was notified on September 28, 1979, that the U.S. EPA had determined that the proposed new construction in

Shelbyville, Indiana would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality, as required by Section 165 of the Act.

This approval to construct does not relieve Knauf of the responsibility to comply with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1), petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V, U.S. EPA, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2090.

John McGuire,

Regional Administrator, Region V.

Region V—Approval To Construct EPA-5-A-79-31

In the matter of Knauf Fiber Glass GmbH, Manufacturing Line No. 602, Shelbyville, Ind., proceeding pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act, as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. Knauf Fiber Glass GmbH (Knauf) proposes to construct a fiber glass insulation manufacturing line at 304 Elizabeth Street, Shelbyville, Shelby County, Indiana.

2. Shelby County is a Class II area as determined pursuant to the Act and has been designated an attainment area pursuant to Section 107 of the Act for all criteria pollutants.

3. The proposed manufacturing line is subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act.

4. The proposed fiber glass line was determined to be subject to a PSD review for total suspended particulate (TSP) based on potential emissions greater than 250 tons per year. An air quality review for the other criteria pollutants was not performed because their emissions were substantially below the 250 tons per year cutoff.

5. Knauf submitted a PSD application to the U.S. Environmental Protection Agency (U.S. EPA) on December 6, 1978. On February 20, 1979 and April 11, 1979, deficiency notices were sent to Knauf and on March 14, 1979



and June 8, 1979, additional information was received for review. On June 19, 1979, the application was determined to be complete and preliminary approval was granted.

6. On August 13, 1979, notice was published in the *Shelbyville News*. The notice sought written comments from the public on Knauf's application and U.S. EPA's preliminary approval of the proposed construction. There were no public comments and no requests for a public hearing.

7. After review and analysis of the material submitted by Knauf, U.S. EPA has determined that emissions from the construction and operation of the fiber glass insulation manufacturing line No. 602 in Shelbyville, Indiana will not violate the air quality increments. It will not violate the National Ambient Air Quality Standards (NAAQS) and the emissions from the facility will be reduced by the application of the best available control technology (BACT).

#### Conditions for Approval

8. Particulate emissions from Rotary Line 602 shall not exceed 0.21 gr/dscf.

9. Haul trucks transporting wastes and sludge shall be covered.

Conditions 8 and 9 represent application of the best available control technology as required by Section 165 of the Act.

10. Knauf must construct and operate the fiber glass insulation manufacturing line No. 602 in accordance with the descriptions presented in their final application for approval to construct. Any change in the design or operation might alter U.S. EPA's conclusions and therefore, any changes must receive the prior written authorization of the U.S. EPA.

#### Approval

11. Approval to construct the fiber glass insulation manufacturing line No. 602 is hereby granted to Knauf subject to the conditions expressed herein and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval or the terms expressed in the application must receive the prior written authorization of the U.S. EPA.

12. The United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1006 and consolidated cases) which has significant impact on the EPA prevention of significant deterioration (PSD) program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulations and could affect approval issued under the existing program. Examples of potential impact areas include the scope of best available control technology (BACT), source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is hereby advised that this approval may be subject to reevaluation as a result of the final decision and its ultimate effect.

13. This approval to construct does not relieve Knauf of the responsibility to comply

with the control strategy and all local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

14. This approval is effective immediately. This approval to construct shall become invalid, if construction or expansion is not commenced within 18 months after receipt of this approval or if construction is discontinued for a period of 18 months or more. The Administrator may extend such time period upon a satisfactory showing that an extension is justified. Notification shall be made to U.S. EPA 5 days after construction is commenced.

15. A copy of this approval has been forwarded to the Carnegie Public Library, 57 W. Broadway, Shelbyville, Indiana.

Dated: September 28, 1979.

John McGuire,

Regional Administrator.

[FR Doc. 79-34107 Filed 11-2-79; 2:45 am]

BILLING CODE 6560-01-M

[FRL 1351-4]

#### Miller Brewing Co.; Butler County, Ohio; Final Determination

In the matter of the applicability of Title I, Part C of the Clean Air Act (Act), as amended, 42 U.S.C. 7401 *et seq.*, and the Federal regulations promulgated thereunder at 40 CFR 52.21 (43 FR 28388, June 19, 1978) for Prevention of Significant Deterioration of Air Quality (PSD), to Miller Brewing Company (Miller), Butler County Ohio.

On April 9, 1979, Miller submitted an application to the United States Environmental Protection Agency (U.S. EPA), Region V office, for an approval to construct a facility for the brewing and packaging of beer in Butler County, Ohio. On May 24, 1979, additional information was submitted by Miller. The application was submitted pursuant to the regulations for PSD.

On July 5, 1979, Miller was notified that its application was complete and preliminary approval was granted.

On July 12, 1979, U.S. EPA published notice of its decision to grant a preliminary approval to Miller. No comments or request for a public hearing were received.

After review and analysis of all materials submitted by Miller, the Company was notified on September 13, 1979, that the U.S. EPA had determined that the proposed new construction in Butler County, Ohio would be utilizing the best available control technology and that emissions from the facility will not adversely impact air quality, as required by Section 165 of the Act.

This approval to construct does not relieve Miller of the responsibility to comply with the control strategy and all

local, State and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

This determination may now be considered final agency action which is locally applicable under Section 307(b)(1) of the Act and therefore, a petition for review may be filed in the U.S. Court of Appeals for the Seventh Circuit by any appropriate party. In accordance with Section 307(b)(1), petitions for review must be filed sixty days from the date of this notice.

For further information contact Eric Cohen, Chief, Compliance Section, Region V, U.S. EPA, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2090.

John McGuire,

Regional Administrator, Region V.

#### Approval to Construct EPA-5-79-A-28

In the matter of Miller Brewing Company, Butler County, Ohio; Proceeding pursuant to the Clean Air Act, as amended.

#### Authority

The approval to construct is issued pursuant to the Clean Air Act as amended, 42 U.S.C. 7401 *et seq.*, (the Act), and the Federal regulations promulgated thereunder at 40 CFR 52.21 for the Prevention of Significant Deterioration of Air Quality (PSD).

#### Findings

1. The Miller Brewing Company (Miller) is planning to construct a major facility for the brewing and packaging of beer in St. Clair Township, South of the intersection of Riverside Drive and Hamilton Trenton Road between Gephart Road and Wayne Madison Road, in Butler County, Ohio.

2. Butler County is a Class II area as determined pursuant to the Act and has been designated an attainment area for sulfur dioxide (SO<sub>2</sub>) and for nitrogen oxides (NO<sub>x</sub>) pursuant to Section 107 of the Act. Additionally, Miller satisfactorily demonstrated that the area in which the proposed facility is to be placed is attainment for total suspended particulates (TSP).

3. The proposed brewery has an allowable emission rate of over 50 tons per year for SO<sub>2</sub>, NO<sub>x</sub> and TSP. The brewery is, therefore, subject to the requirements of 40 CFR 52.21 and the applicable sections of the Act. Consequently, full PSD review was performed.

4. Miller submitted an application for PSD approval on April 4, 1979. On April 23, 1979, the application was determined to be deficient in information necessary for a PSD review. On May 24, 1979, additional information was submitted by Miller and on July 5, 1979, U.S. EPA determined that the application was complete and preliminary approval was issued.

5. On July 12, 1979, joint public notice with the Ohio Environmental Protection Agency appeared in the *Hamilton Journal News*. There were no public comments and no requests for a public hearing.

6. After review of all the materials submitted by Miller Brewing, U.S. EPA has determined that emissions from the brewery will be controlled by the application of the best available control technology (BACT).

7. The air quality review has shown that the Miller Brewing proposed plant's impact will not significantly deteriorate the ambient air quality at the proposed site.

#### Conditions for Approval

8. Emission of particulate matter from pulverized coal-fired boilers 1 and 2 shall not exceed 0.01 grains per actual cubic foot.

9. Emissions of sulfur dioxide from pulverized coal-fired boilers 1 and 2 shall not exceed 1.6 pounds per million BTU actual heat input, on a 24-hour average basis.

10. (a). The two Riley Stoker Company pulverized coal-fired boilers shall utilize the manufacturer's best design for minimizing nitrogen oxides. The design shall utilize overfire, underfire, and sidefire air to reduce flame temperature and limit combustion air.

(b). Emissions of nitrogen oxides shall not exceed 0.8 pounds per million BTU actual heat input, unless a review by U.S. EPA of the performance testing required by Condition 21 indicates that this emission limit cannot be attained and maintained.

(c). In no case shall emissions exceed 0.7 pounds per million BTU of actual heat input.

11. Emissions of sulfur dioxide from oil-fired boiler 3 shall not exceed 0.8 pounds per million BTU, on a 24-hour average basis.

12. Particulate emissions from the following locations shall not exceed 0.00135 grains per actual cubic foot at the control device discharge point to the atmosphere:

- (a). Grain unloading hoppers.
- (b). Malt transfer system 1, 2 and 3.
- (c). Grits transfer.
- (d). Malt milling and weighing.
- (e). Dry spend grain transfer.
- (f). Dry spend grain silos.
- (g). Grain storage silos.

13. Particulate emissions from the following locations shall not exceed 0.02 grains per actual cubic foot:

- (a). Coal handling system-track hopper.
- (b). Coal handling system-crusher.
- (c). Coal handling system-transfer tower.
- (d). Spent grain dryers.

14. Particulate emissions from the diatomaceous earth handling systems shall not exceed 0.01 grains per actual cubic foot.

15. Particulate emissions from the ash handling system air washer shall not exceed 0.56 grains per actual cubic foot. (This is equivalent to 9 pounds per hour at 1860 actual cubic feet per minute).

16. Filters shall be used to control particulates from the displaced air from the fly ash and bottom ash silos, coal bunkers 1 and 2, and from the lime and ash silos at the wastewater treatment plant.

17. There shall be no visible emissions of fugitive (non-stack) particulate matter, except for two minutes in an hour of no more than 20% opacity, from any of the locations itemized in Conditions 12, 13, 14, 15, and 16.

18. A telescoping chute and wet suppression system shall be utilized to minimize fugitive particulate emissions from loadout to the active storage pile. The inactive storage pile shall be compacted and sprayed with a chemical coagulant.

19. The trucks utilized for disposal of dewatered sludge and boiler ash shall be covered.

20. Dust accumulating on the surface of the grain storage areas and brewhouse shall be periodically removed by vacuum cleaning system.

Conditions 8-20 represent the application of the best available control technology as required by Section 165 of the Act.

#### 21. Performance Testing/Reporting

**Requirements.**—(a). Within 180 days after initial startup of Boilers 1 and 2, and at other such times as may be required under Section 114 of the Clean Air Act, Miller Brewing shall conduct performance tests and furnish U.S. EPA with a written report of the results.

(b). The performance testing shall be conducted for nitrogen oxides and particulate matter, using standard test methods approved by U.S. EPA.

(c). Miller Brewing shall provide U.S. EPA with 30 days prior notice of the performance test to afford U.S. EPA the opportunity to have an observer present.

(d). Each performance test shall consist of three separate runs using the appropriate test method. For the purpose of determining compliance with applicable emission limits, the arithmetic means of the results of three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discounted because of a forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions; or other circumstances beyond Miller Brewing's control, compliance may, upon U.S. EPA's approval, be determined using the arithmetic mean of the results of the two other runs.

Condition 21 is required in order to insure that BACT is maintained consistently.

22. Any change in Miller Brewing's proposed brewery plan might alter U.S. EPA's conclusion, and therefore, any change must receive the prior written authorization of U.S. EPA.

#### Approval

23. Approval to construct the brewery is hereby granted to the Miller Brewing Company subject to the conditions expressed herein and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval of the terms expressed in the application, must receive the prior written authorization of U.S. EPA.

24. The United States Court of Appeals for the D.C. Circuit has issued a ruling in the case of *Alabama Power Co. vs. Douglas M. Costle* (78-1006 and consolidated cases) which has significant impact on the EPA PSD program and approvals issued thereunder. Although the court has stayed its decision pending resolution of petitions for reconsideration, it is possible that the final decision will require modification of the PSD regulations and could affect approvals issued under the existing program. Examples of potential impact areas include the scope of best available control technology, source applicability, the amount of increment available (baseline definition), and the extent of preconstruction monitoring that a source may be required to perform. The applicant is

hereby advised that this approval may be subject to reevaluation as a result of the final court decision and its ultimate effect.

25. This approval to construction does not relieve Miller of the responsibility to comply with the control strategy and all local, State, and Federal regulations which are part of the applicable State Implementation Plan, as well as all other applicable Federal, State and local requirements.

26. A copy of this determination has been forwarded to the Southwestern Ohio Air Pollution Control Division, 11750 Chesterdale Road, Atkinson Square, Cincinnati, Ohio 45246.

Date: September 13, 1979.

John McGuire,

Regional Administrator.

[FR Doc. 79-34110 Filed 11-2-79; 8:45 am]

BILLING CODE 6560-01-M

[OPP-00107; FRL 1351-2]

#### State FIFRA Issues Research and Evaluation Group (SFIREG)

**AGENCY:** Environmental Protection Agency (EPA), Office of Pesticide Programs.

**ACTION:** Notice of Open Meeting.

**SUMMARY:** There will be a two-day meeting of the State FIFRA Issues Research and Evaluation Group (SFIREG) on Wednesday and Thursday, December 5 and 6, 1979, beginning each day at 8:30 a.m. and ending at noon on December 6. The meeting will be held in Room 3908-3908, Waterside Mall, 401 M Street, SW., Washington, D.C. 20460 and will be open to the public.

**FOR FURTHER INFORMATION CONTACT:** Mr. P. H. Gray, Jr., Operations Division (TS-770-M), Office of Pesticide Programs, EPA, 401 M Street, S.W., Washington, D.C. 20460, Telephone: 202/472-9400.

**SUPPLEMENTARY INFORMATION:** This is the fourth meeting of the full Group. The tentative agenda thus far includes the following topics:

1. Action items from the July, 1979 meeting of SFIREG;
2. Regional reports;
3. Working Committee reports; and
4. Other topics which may arise.

Dated: October 26, 1979.

James M. Conlon,

Associate Deputy Assistant Administrator for Pesticide Programs.

[FR Doc. 79-34111 Filed 11-2-79; 8:45 am]

BILLING CODE 6560-01-M

**FEDERAL COMMUNICATIONS COMMISSION**

[CC Docket No. 79-138]

**American Telephone & Telegraph Co., Revisions to Tariff FCC No. 260; Increased Rates Relating to Common Control Switching Arrangement (CCSA)****AGENCY:** Federal Communications Commission.**ACTION:** Extension of Time in CCSA Investigation under CC Docket No. 79-138.

**SUMMARY:** On October 17, 1979, the Ad Hoc Telecommunications Users Committee filed a Motion seeking to compel AT&T to produce certain information and data. In order to afford the Bureau sufficient time for full consideration of the Committee's motion as well as any oppositions which may be filed, The Chief, Common Carrier Bureau has extended from November 5, 1979 to November 19, 1979, the date for filing reply cases in the CC Docket 79-138 investigation.

**DATE:** Reply Comments must be filed on or before November 19, 1979.

**ADDRESSES:** Federal Communications Commission, Washington, D.C. 20554.

**FOR FURTHER INFORMATION CONTACT:** Richard Rubin, Common Carrier Bureau, (202) 632-6312.

In the matter of American Telephone & Telegraph Co., revisions to Tariff F.C.C. No. 260 increased rates relating to Common Control Switching Arrangements (CCSA), CC Docket No. 79-138.

**Memorandum Opinion and Order, 44 FR 39305, July 5, 1979.**

Adopted: October 24, 1979.

Released: October 26, 1979.

1. On October 17, 1979, the Ad Hoc Telecommunications Users Committee (Committee) filed a motion seeking to compel the American Telephone and Telegraph Company (AT&T) to produce certain information and data. Should this motion be granted, the Committee also requested an extension of time in which to file its reply case in the CC Docket No. 79-138 investigation until four weeks after the information has been provided by AT&T.

2. In order to afford the Bureau sufficient time for full consideration of the Committee's motion as well as any oppositions which may be filed, we are extending on our own motion, from November 5, 1979 to November 19, 1979, the date for filing reply cases.

3. Accordingly, it is ordered that, pursuant to authority delegated in Order

FCC 79-330, adopted May 31, 1979 the date for the filing of reply cases in this proceeding is extended until November 19, 1979.

Federal Communications Commission.  
Philip L. Verveer,  
Chief, Common Carrier Bureau.

[FR Doc. 79-34113 Filed 11-2-79; 8:45 am]

BILLING CODE 6712-01-M

[FCC 79-628; CC Docket No. 79-264; File No. TS7-78]

**Mark Edwards, d.b.a. Edwards Industries, and Edwards Industries, Inc., Complainants v. Bell Telephone Co. of Nevada, The Pacific Telephone & Telegraph Co., and American Telephone & Telegraph Co., Defendants**

*Memorandum Opinion and Order and Notice of Apparent Liability*

Adopted: October 10, 1979.

Released: October 26, 1979.

By the Commission: Commissioner Jones absent.

**Background**

1. Before us is a complaint filed on June 1, 1978 on behalf of Mark Edwards, doing business as Edwards Industries, and Edwards Industries, Inc. (Complainants).<sup>1</sup> Complainants are communications consultants and communications equipment manufacturers. The complaint was filed against Bell Telephone Company of Nevada (Nevada Bell) and its parent companies, The Pacific Telephone and Telegraph Company and American Telephone and Telegraph Company (collectively Defendants).

2. Complainants allege wrongful refusal by Nevada Bell to agree to connection of a protective coupler manufactured by Edwards Industries, Inc. (Edwards) by one of Edwards' customers, West Coast Oil and Gas Company (WCOG). The coupler, model number FS-73, was connected to a key telephone system which WCOG also purchased from Edwards. The complainant alleges that representatives of Nevada Bell informed WCOG at various times between February 17, 1978 and February 27, 1978 that the FS-73 coupler was not registered by the Commission for use with a key telephone system, and threatened to disconnect its telephone service if one that had been installed was not

<sup>1</sup> Also before us are Defendants' Answer and their Motion to Dismiss; Complainants' Memorandum of Reply to Answer and their Opposition to Motion to Dismiss; and Defendants' Reply to Complainants' Opposition to Motion to Dismiss. All pleadings were timely filed.

removed, when in fact the coupler was properly registered for this use. Complainants claim that, as a result of the attempted interference with use of the coupler and of the representations made about it by Nevada Bell, they incurred various expenses.

3. In response to these allegations, Defendants assert that the FS-73 coupler did not appear on the Commission's registration list for couplers approved for use with a key telephone system at the time of the actions complained of, and that their actions therefore do not constitute a violation of any provision of the Communications Act of 1934, as amended (the Act). Further, Defendants contend that Nevada Bell eventually agreed to permit use of the coupler on February 22, 1978, rather than on February 27, 1978, as Complainants allege and that the damages claimed by Complainants have not been sufficiently explained to justify recovery even were a violation of the Act to be established.

4. Complainants reply to these assertions by claiming that the Commission's letter granting registration of the FS-73 coupler permitted its use with key telephone systems, and that Defendants have violated Section 202 of the Act, 47 U.S.C. § 202, by their actions. Moreover, it is contended that the damages alleged are reasonable and foreseeable consequences of Defendant's actions. Complainants seek an order commanding Defendants to cease and desist from disparaging Complainants' products and services, plus the sum of \$3590 in damages.

**Discussion**

*Defendants' Motion To Dismiss*

5. Before discussing the merits of this complaint, we will dispose of a motion to dismiss submitted by Defendants. In support of their motion, Defendants make four major arguments. The first is that the complaint does not state a cause of action under the Act. We believe, to the contrary, that the conduct complained of comprises separate causes of action under Sections 202(a) and 203(c)(3) of the Act. The facts alleged concerning attempted interference with customer use of properly registered equipment, if true, can constitute undue and unreasonable disadvantage in violation of Section 202(a), and contravention of tariff provisions in violation of Section 203(c)(3).

6. The second contention is that Complainants have not established a factual basis for recovery of damages that they claim in light of the violations alleged. We believe, however, that the

expenses that are alleged to have resulted from Defendants' conduct, namely for professional services, for loan interest, and for internal expenses are plead with sufficient specificity to permit recovery if a violation on the part of Defendants is established. As made clear below, we find that the complaint is sufficient to apprise Defendants fully of which "provisions of the Communications Act, or an order, rule, or regulation of the Commission have been violated . . . (and) the facts claimed to constitute such violation . . ." as required by § 1.722 of our rules. The complaint is drawn properly to state a cause of action under the Act and does not lack legal sufficiency on its face and, accordingly, cannot be dismissed for that reason under section 1.735 of our rules.

7. Accordingly, Defendants' third argument, that Complainants did not comply with certain procedural requirements of our rules<sup>2</sup> is not substantial enough to warrant dismissal of the complaint. As we stated above, Complainants have stated their allegations in enough detail to maintain their cause of action. We ruled in *Bunker-Ramo v. Western Union*, 25 F.C.C. 2d 691 (1970), that a "liberal construction" should be applied to our rules concerning complaints and the minor omissions cited by Defendants are not substantial enough to warrant dismissal of the complaint.

8. Defendants finally argue that the expenses claimed as damages can not be viewed as consequences of the alleged acts of Defendants. We believe, to the contrary, that the damages claimed could be consequences of the violations alleged as will be further discussed below. For all the foregoing reasons, the motion to dismiss will be denied.

#### *Registration Status of the FS-73 Coupler*

9. In determining the status of the FS-73 coupler in terms of its usability with key telephone systems, the first step is to look to the Commission letter approving its registration, rather than to the Commission's registration list. The Commission's registrations list, while indicating the approval of many devices, including grandfathered equipment, is issued for informational purposes from time to time and may not necessarily be current or comprehensive and is therefore not legally dispositive of the

status of a particular product. Defendants' reliance solely on this list as the basis for its conclusion that the FS-73 coupler was registered for use with ancillary equipment, and not with key telephone systems, was not only incorrect but Defendants should have known that exclusive reliance on such list under the circumstances was unreasonable.

10. Furthermore, Part 68 of our rules, which specifies the requirements for use of customer-provided terminal equipment, does not refer to the FCC Registration List. Instead, our rules provide that, "Customers connecting terminal equipment or protective circuitry to the telephone network shall, before such connection is made, give notice to the telephone company of the particular lines(s) to which such connection is to be made, and shall provide to the telephone company the F.C.C. Registration Number and Ringer Equivalence of the registered terminal equipment or registered protective circuitry."<sup>3</sup> Complainants indicate that the registration number of the FS-73 coupler was provided to Defendants by WCOG. In view of this rule, it is clear that Defendants acted unreasonably in relying solely on the FCC Registration List. The fact that WCOG was able to provide an FCC registration number should have been sufficient to alert Defendants that exclusive reliance on the list was ill advised.

11. The official status of the FS-73 coupler is reflected in the registration authorization. "The use of protective couplers on the FCC Registration List with Private Branch Exchanges (PBXs) and key telephone systems were at the time of the grant subject to a stay issued on April 29, 1976 by the Fourth Circuit Court of Appeals pending its decision in the case of *North Carolina Utilities Commission v. FCC*, 552 F. 2d 1936 (1977). Consequently, the grant contained the condition that " \* \* \* such circuitry cannot be lawfully used with any PBX or Key Telephone Equipment unless or until such stay is lifted." Therefore once the stay was lifted on October 16, 1977, "the use of the FS-73 coupler with key telephone systems was automatically permissible."<sup>4</sup>

<sup>2</sup> FCC Rules and Regulations, § 68.106.

<sup>3</sup> Grant of Registration to Edwards Industries, dated March 9, 1977, File No. 339-CX-76, Registration Number AAZ99F-62468-PC-N.

<sup>4</sup> The stay was lifted once the Supreme Court denied certiorari at 434 U.S. 874 (1977).

<sup>5</sup> Further, after first refusing to give permission, Nevada Bell eventually agreed to use of the FS-73 coupler. While the length of Nevada Bell's delay in giving permission is in dispute, it is clear that Defendants acted wrongfully in initially attempting to interfere with the use of Complainants' product and that Defendants cannot deny knowledge of the

12. We find that Defendants' conduct with respect to connection of the FS-73 coupler violated two provisions of the Act. Although Complainants raise only the question of Defendants' liability under Section 202(a), we believe that Section 203(c)(3) was also violated. We will discuss these violations in turn.

13. Section 202(a), which prohibits a carrier from subjecting a person to unreasonable prejudice or disadvantage, was violated by Nevada Bell when it treated the FS-73 coupler manufactured by Edwards differently from other similarly registered devices.<sup>7</sup> Since, as we have stated, the status of the FS-73 coupler and the nature of our registration procedures are matters of public record of which Nevada Bell should have been aware, there was no reasonable basis upon which a discrimination could be made between use of this coupler by WCOG and use of other registered couplers. Complainants allege that Nevada Bell insisted that a coupler owned by it be used instead of their device. Defendants deny this allegation, but do admit that a Nevada Bell employee, " . . . advised WCOG that the customer had five working days to replace the Edwards Coupler with one registered and approved for use with KTS or service would be disconnected on those lines connected by means of the Edwards Coupler."<sup>8</sup> Since the Edwards coupler was properly registered, this distinction between devices was not reasonable under any circumstances. Complainants were, therefore, subjected to an "undue or unreasonable prejudice or disadvantage" in the use of their product within the meaning of Section 202(a) of the Act. Even though Nevada Bell's threat to disconnect WCOG's service was never effectuated, we believe that an unlawful discrimination within the meaning of the Act occurred on the basis of the threat and attempted interference with use of the coupler that took place.

applicable provisions of AT&T's tariff. Complainants allege that Nevada Bell did not reverse itself until February 27, 1978. Defendants claim that this action was on February 22, 1978. In either case, Complainants could have been adversely affected.

<sup>7</sup> Section 202(a) of the Act reads, "It shall be unlawful for any common carrier to make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services for or in connection with like communication service, directly or indirectly, by any means or device, or to make or give any undue or unreasonable preference or advantage to any particular person, class of persons, or locality, or to subject any particular person, class of persons, or locality to any undue or unreasonable prejudice or disadvantage."

<sup>8</sup> Answer of Defendants, filed July 31, 1978, p. 3.

<sup>2</sup> Defendants specifically allege that Complainants did not comply with §§ 1.722 requiring sufficient statement of the facts; 1.723 requiring requests for damages be plead with specificity; 1.724 requiring the citing of specific tariff references; and 1.726 requiring allegations of discrimination be plead with specificity.

14. Further, Section 203(c)(3), which prohibits a carrier from enforcing regulations or practices contrary to its tariffs, also was violated by Nevada Bell's refusal to agree to the use of the FS-73 coupler.<sup>9</sup> Such refusal contravened provisions in Sections 2.6.8 and 2.7.4 of AT&T Tariff F.C.C. No. 263 which permit installation of properly registered customer-owned terminal equipment.<sup>10</sup> In addition to the above violations of the Act, moreover, Nevada Bell acted in contravention of Section 68.100 of our rules, which provides for connection of terminal equipment in accordance with the applicable rules and regulations.<sup>11</sup>

15. Complainants claim that Nevada Bell's interference with the customer's use of the FS-73 coupler lasted for 10 days, while Defendants reply that it lasted only five days. In either case, the potential for injury to Complainants and the wrongfulness of the conduct are significant. Complainants' business apparently depends on the sale of devices such as the FS-73 coupler. If the right of their customers to use this equipment is refused or threatened, regardless of the length of time involved, Complainants face the possibility of losing business and may not be able to continue to do business successfully. Having complied with our registration program for use of their product, Complainants had every reason to expect that there would be no obstacle to its use by their customers. Nevada Bell clearly acted wrongfully by interfering for a period of time, admitted to be at least five days, with customer use of Complainants' product, when such use was authorized by our registration procedures. Furthermore, we have found no justification as to why

these procedures and the status of the coupler in question should not have been apparent to Nevada Bell.

#### *Relief for Complainants*

16. Complainants seek, in addition to an order commanding Defendants to cease and desist from further disparaging their products, damages for engineering services which were obtained, as well as loan interest and other expenses incurred as a result of the delay in permission for use of the FS-73 coupler by WCOG. It is alleged that the engineering services were required to convince the customer that the FS-73 coupler was lawfully registered, that a loan had to be obtained when the customer refused to pay Edwards following receipt of Nevada Bell's notice that the FS-73 coupler allegedly was not registered, and that internal costs were incurred for additional work needed to rectify the effect of Nevada Bell's conduct. Defendants claim that these damages were not foreseeable, so they are not recoverable under the Act, and in addition that they are not adequately explained.

17. We believe that the damages claimed by Complainants could be expenses that would flow under these circumstances as natural consequences from the violations which have been alleged and, as such, are recoverable under Section 206 of the Act.<sup>12</sup> Complainants' allegations, i.e., that the interference with the conduct of their business for which Defendants were responsible directly resulted in the need for the additional professional services, loans, and expenditures of time, appear reasonable. We therefore reject Defendants' contention that these damages can not be recovered under the Act, especially in light of the clear violation of our rules that has taken place.

18. Having found Defendants in violation of the Act, we expect that they should be able to resolve this matter, in light of the amount of the damages alleged, without the need for the further hearing, as provided for herein, and the delays and costs inherent in such a formal proceeding. We will order that

Defendants report back to the Chief, Administrative Law Judge, within fifteen days of the date of the release of this Order, the results of their negotiations with Complainants. We believe that the amount of damages should be susceptible to a negotiated settlement and only if a settlement is not reached in this manner will we proceed with the hearing that we have ordered herein.<sup>13</sup> We will then order Complainants to file a bill of particulars setting out in detail the damages they seek with supporting documentation, to the designated Administrative Law Judge. The Defendants will then have an opportunity to respond within fifteen days. The designated Administrative Law Judge will make a determination as to the nature and amount of damages to be awarded to Complainants based upon the additional pleadings.<sup>14</sup>

19. Additionally, under the terms of Sections 202(c)<sup>15</sup> and 203(e)<sup>16</sup> of the Act, Nevada Bell is liable for forfeitures for its violations of Sections 202(a) and 203(c)(3). Therefore, we will issue a notice of apparent liability against Nevada Bell.

20. With respect to Complainants' first prayer for relief, we believe that the issuance of the requested cease and desist order is not called for. Complainants ask, "For an order commanding Defendants to cease and desist from making any false, erroneous, or disparaging remarks to any person regarding the FS-73 coupler, any other registered equipment owned by or utilized by Complainants, or in any other manner further disparaging the Complainants' products and services." Such an order would appear to be excessively broad considering that only the FS-73 coupler is involved in this complaint, and that a specific instance of interference with use of the device, rather than more general disparagement of Complainants' products has been

<sup>9</sup>Section 203(c)(3) reads, no carrier shall "extend to any person any privileges or facilities, in such communication, or employ or enforce any classifications, regulations, or practices affecting such charges, except as specified in such schedule."

<sup>10</sup>AT&T Tariff F.C.C. No. 263 Section 2.6.8 reads in pertinent part, "Connection of Customer-Provided Terminal Equipment Attested by a Manufacturer or Supplier (1) Customer-provided terminal equipment, listed in (3) below and defined in 2.5 preceding, which meets the standards and procedures set forth by the Telephone Company in Technical References may be connected to facilities furnished by the Telephone Company for Long Distance Message Telecommunications Service in accordance with provisions of (a) through (e) following."

AT&T Tariff F.C.C. No. 263, Section 2.7.4 reads in pertinent part, "Connection of Customer-Provided Communications Systems Customer-provided communications systems (including channels derived from such systems), not exceeding voice grade, may be connected with Long Distance Message Telecommunications Service at the premises of the Customer: \* \* \*

<sup>11</sup>Section 68.100 of the rules reads, "Terminal equipment may be directly connected to the telephone network in accordance with the rules and regulations in subpart B of this Part."

<sup>12</sup>Section 206 of the Act reads, "In case any common carrier shall do, or cause or permit to be done, any act, matter, or thing in this Act prohibited or declared to be unlawful, or shall omit to do any act, matter, or thing in this Act required to be done, such common carrier shall be liable to the person or persons injured thereby for the full amount of damages sustained in consequence of any such violation of the provisions of this Act, together with a reasonable counsel or attorney's fee, to be fixed by the court in every case of recovery, which attorney's fee shall be taxed and collected as part of the costs in the case."

<sup>13</sup>Although we are issuing a notice of apparent liability for violations occurring for five days, Complainants are not limited to that time period in seeking damages arising in consequence of Defendants' actions for which they have been found liable herein.

<sup>14</sup>A full evidentiary hearing is not required in this proceeding. Therefore, the basis for the designated Administrative Law Judge's determination may be limited to the further pleadings to be submitted.

<sup>15</sup>Section 202(c) of the Act reads, "Any carrier who knowingly violates the provisions of this section shall forfeit to the United States the sum of \$500 for each such offense and \$25 for each and every day of the continuance of such offense."

<sup>16</sup>Section 203(e) of the Act reads, "In case of failure or refusal on the part of any carrier to comply with the provisions of this section or any regulation or order made by the Commission thereunder, such carrier shall forfeit to the United States the sum of \$500 for each such offense, and \$25 for each and every day of the continuance of such offense."



shown. Furthermore, since Complainants agree that the conduct complained of has ceased, an order to cease and desist is not warranted in light of the procedural delays and expense that would be involved in an order to show cause and opportunity for hearing which must precede our issuance of such an order.

21. Accordingly, it is ordered, that Defendant's Motion to Dismiss IS DENIED.

22. It is further ordered, that Complainants' request for an order to cease and desist against Defendants is denied.

23. It is further ordered, that Defendants report to the Chief, Administrative Law Judge within fifteen days of the date of the release of this Order, the results of their attempt to negotiate a settlement.

24. It is further ordered, that Complainants file full particulars concerning their nature and extent of the damages claimed in the event that a further hearing is conducted.

25. It is further ordered, pursuant to Sections 4(i), 4(j), 202, 203, 205, 206, 207, 208, and 209 of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), 202, 203, 205, 206, 207, 208, and 209, That this matter is designated for further hearing only if the Complainants and Defendants do not reach a negotiated settlement on the following issue:

To determine the nature and extent of the damages which Complainants are entitled to recover for expenses which they allege were incurred as a result of Defendants' interference with use of the Model FS-73 coupler.

26. It is further ordered, that any further hearing in this proceeding shall be held before an Administrative Law Judge at a time and place to be specified by subsequent order; and that such Administrative Law Judge shall, upon closing of the record, prepare and issue an initial decision, which shall be subject to the submission of exceptions and requests for oral argument as provided in §§ 1.276 and 1.277 of our rules (47 CFR 1.276 and 1.277), after which the Commission shall issue its decision as provided in § 1.282 of the rules (47 CFR 1.282).

27. It is further ordered, that Mark Edwards, dba Edwards Industries, Edwards Industries, Inc., Bell Telephone Company of Nevada, The Pacific Telephone and Telegraph Company, American Telephone and Telegraph Company, and the Chief, Common Carrier Bureau, are made parties to any further proceeding.

28. It is further ordered, pursuant to 47 CFR 1.80(f), That Bell Telephone Company of Nevada is notified of its apparent liability to monetary forfeiture of \$1200 for the following violations:

\$500 for a violation of Section 202(a) by refusing to agree to use of the FS-73 coupler manufactured by Edwards for its customer, WCOG, while insisting on use of a coupler obtained from an alternative manufacturer, and \$25 for each of the four days that it has been admitted that the offense continued;

\$500 for a violation of Section 203(c)(3) by disregarding Sections 2.6.8. and 2.7.4 of AT&T Tariff F.C.C. No. 263 by refusing to agree to use by WCOG of the duly registered FS-73 coupler; and \$25 for each of the four days that it has been admitted that the offense continued.

29. It is further ordered, that Bell Telephone Company of Nevada shall respond in writing within 30 days from the date of this notice either to show why this forfeiture should not be imposed, to show why it should be reduced, or to pay the forfeiture. If Bell Telephone Company of Nevada elects to pay the forfeiture, it should be paid by check or money order drawn to the order of the Federal Communications Commission and mailed to our Fee Collection Section at Box 19302, Washington, D.C. 20036. The amount of the forfeiture paid should be charged to the appropriate account as provided for in 47 CFR Part 31.

Federal Communications Commission.

William J. Tricarico,

Secretary.

[FR Doc. 79-34069 Filed 11-2-79; 6:45 am]

BILLING CODE 6712-01-M

#### FM and TV Translator Applications Ready and Available for Processing

Adopted: October 22, 1979.

Released: October 26, 1979.

By the Chief, Broadcast Facilities Division.

Notice is hereby given pursuant to §§ 73.3572(c) and 73.3573(d) of the Commission's Rules, that on December 7, 1979, the TV and FM translator applications listed in the attached Appendix will be considered ready and available for processing. Pursuant to §§ 1.227(b)(1) and 73.3591(b) of the Rules, and application, in order to be considered with any application appearing on the attached list or with any other application on file by the close of business on December 6, 1979, which involves a conflict necessitating a hearing with any application on this list, must be substantially complete and submitted for filing at the offices of the Commission in Washington, D.C., by the close of business on December 6, 1979.

Any party in interest desiring to file pleadings concerning any pending TV and FM translator application, pursuant to Section 309(d)(1) of the Communications Act of 1934, as amended, is directed to § 73.3584(a) of the Rules, which specifies the time for filing and other requirements relating to such pleadings.

Federal Communications Commission.

William J. Tricarico,

Secretary.

#### UHF TV Translator Applications

BPTT-790315IF (new), Bayfield-Ignacio, Colorado, Regents Of The University Of New Mexico And Board Of Education Of The City Of Albuquerque, New Mexico, Reg: Channel 61, 752-758 MHz, 100 watts Primary: KNME-TV, Albuquerque, New Mexico.

BPTT-790405IC (K77CI), Willmar Minnesota, UHF Television, Inc., Reg: Change primary TV Station to KSTP-TV, Channel 5, St. Paul, Minnesota.

BPTT-790405ID (K6CAB), Appleton, Minnesota, Rural Western UHF TV Corporation, Reg: Change primary TV Station to KSTP-TV, Channel 5, St. Paul, Minnesota.

BPTT-790423IJ (new), Bird Point, Interfacing With Girdwood, Alaska Northern Television, Incorporated, Reg: Channel 67, 728-734 MHz, 10 watts, Primary: KTVA-TV, Anchorage, Alaska.

BPTT-790409IG (new), Fish Lake Valley, Nevada, Fish Lake Valley Television District, Reg: Channel 55, 716-722 MHz, 20 watts Primary: KCRL-TV, Reno, Nevada.

BPTT-790409IH (new), Rural Summit Company, Utah, Summit County, Reg: Channel 43, 644-650 MHz, 100 watts, Primary: KSTU-TV, Salt Lake City, Utah.

BPTT-790409II (new), Iron County (Rural), Utah, Iron County, Reg: Channel 61, 752-758 MHz, 100 watts, Primary: KBYU-TV, Provo, Utah.

BPTT-790511ID (new), Cottonwood, Clarkdale, Cornville & Prescott, Arizona, Arizona Board Of Regents, Reg: Channel 42, 638-644 MHz, 100 watts, Primary: KAET-TV, Phoenix, Arizona.

BPTT-790511IE (new), Flagstaff, Arizona, Arizona Board Of Regents, Reg: Channel 59, 740-746 MHz, 100 watts, Primary: KAET-TV, Phoenix, Arizona.

BPTT-790518IC (new), Crowley, Louisiana, Full Gospel Business Men's Fellowship International, Reg: Channel 65, 776-782 MHz, 100 watts, Primary: WJAN-TV, Canton, Ohio.

BPTT-790518ID (new), Waterloo, Iowa, Full Gospel Business Men's Fellowship International, Reg: Channel 65, 776-782 MHz, 100 watts, Primary: WJAN-TV, Canton, Ohio.

BPTT-790524IB (K79AP), Bayfield & Ignacio, Colorado, Pine River TV Association, Reg: Change frequency to Channel 63, 764-770 MHz, increase output power to 100 watts.

BPTT-790524IC (new), Decorah, Iowa, State Educational Radio And Television Facility Board, Reg: Channel 14, 470-476 MHz, 1,000 watts, Primary: KYIN-TV, Mason City, Iowa.

BPTT-790524ID (new), High Point, Iowa, State Educational Radio And Television Facility Board, Req: Channel 14, 470-476 MHz, 1,000 watts, Primary: KDIN-TV, Des Moines, Iowa.

BPTT-790524IE (new), Mounty Ayr, Iowa, State Educational Radio And Television Facility Board, Req: Channel 25, 536-542 MHz, 1,000 watts, Primary: KDIN-TV, Des Moines, Iowa.

BPTT-790524IF (new), Centerville, Iowa, State Educational Radio And Television Facility Board, Req: Channel 31, 572-578 MHz, 1,000 watts, Primary: KDIN-TV, Des Moines, Iowa.

BPTT-790524IG (new), Spirit Lake, Iowa, State Educational Radio And Television Facility Board, Req: Channel 38, 614-620 MHz, 1,000 watts, Primary: KTHN-TV, Fort Dodge, Iowa.

BPTT-790524IH (new), Lansing, Iowa, State Educational Radio And Television Facility Board, Req: Channel 41, 632-638 MHz, 1,000 watts, Primary: KRIN-TV, Waterloo, Iowa.

BPTT-790525IF (new), Oro Valley, Arizona, May Broadcasting Company, Req: Channel 18, 494-500 MHz, 1,000 watts, Primary: KGUN-TV, Tucson, Arizona.

BPTT-790604ID (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 58, 734-740 MHz, 100 watts, Primary: KGW-TV, Portland, Oregon.

BPTT-790604IE (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 60, 746-752 MHz, 100 watts, Primary: KOIN-TV, Portland, Oregon.

BPTT-790604IF (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 62, 758-764 MHz, 100 watts, Primary: KPTV-TV, Portland, Oregon.

BPTT-790604IG (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 64, 770-776 MHz, 100 watts, Primary: KEZI-TV, Eugene, Oregon.

BPTT-790604IH (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 68, 782-788 MHz, 100 watts, Primary: KSYS-TV, Medford, Oregon.

BPTT-790604II (new), Grants Pass, Oregon, Robert Timothy Rolle, Req: Channel 68, 794-800 MHz, 100 watts, Primary: KTVU-TV, Oakland, California.

BPTT-790702IC (new), Rockville, Utah, Washington County Television Dept., Req: Channel 60, 746-752 MHz, 100 watts, Primary: KBYU-TV, Provo, Utah.

BPTT-790710IC (new), Youngstown & Surrounding Area, Ohio, Northeastern Educational Television Of Ohio, Inc., Req: Channel 58, 734-740 MHz, 1,000 watts, Primary: WNEO-TV, Alliance, Ohio.

BPTT-790702ID (new), Virgin, Utah, Washington County Television Dept., Req: Channel 64, 770-776 MHz 100 watts, Primary: KBYU-TV, Provo, Utha.

BPTT-790719ID (new), Wichita Falls, Texas, Wichita Falls Education Translator, Inc., Req: Channel 24, 530-536 MHz, 1000 watts, Primary: KERA-TV, Dallas, Texas.

BPTT-790725IA (new), Inverness, Florida, Hubbard Broadcasting, Inc., Req: Channel 61, 752-758 MHz, 100 watts Primary: WTOG-TV, St. Petersburg, Florida.

BPTT-790727IC (new), Frankfort, Ilion, Mohawk & Utica, New York, Sonderling Broadcasting Corporation, Req: Channel 55,

716-722 MHz, 100 watts, Primary: WAST-TV, Albany, New York.

BPTT-790727ID (new), Dolgeville, Herkimer & Little Falls, New York, Sonderling Broadcasting Corporation, Req: Channel 63, 764-770 MHz, 100 watts, Primary: WAST-TV, Albany, New York.

BPTT-790803IB (new), Sebring, Florida, WTSP-TV, Inc., Req: Channel 27, 548-554 MHz, 1000 watts, Primary: WTSP-TV, Largo, Florida.

BPTT-790809IB (new), Rapid City, South Dakota, Midcontinent Broadcasting, Co., Req: Channel 15, 476-482 MHz, 1000 watts, Primary: KPLO-TV, Reliance, South Dakota.

BPTT-790809IC (new), Lake Andes, South Dakota, Midcontinent Broadcasting, Co., Req: Channel 57, 728-734 MHz, 100 watts, Primary: KELO-TV, Sioux Falls, South Dakota.

#### FM Translator Applications

BPFTB-790727IB (new), Burbank, California, KPCC, Inc., Req: Channel 296, 107.1 MHz, 10 watts, Primary: KMAX-FM, Arcadia, California.

#### VHF TV Translator Applications

BPTTV-790315IE (new), Grants Milan, New Mexico, Regents Of The University of New Mexico And Board Of Education Of The City Of Albuquerque, New Mexico, Req: Channel 2, 54-60 MHz, 10 watts, Primary: KNME-TV, Albuquerque, New Mexico.

BPTTV-790419IB (new), Selawick, Alaska, City Of Selawick, Req: Channel 2, 54-60 MHz, 10 watts, Primary: KYUK-TV, Bethel, Alaska, KUAC-TV, Fairbanks, Alaska, KIMO-TV, KTVA-TV, KENI-TV, & KAKM-TV, Anchorage, Alaska.

BPTTV-790423IK (new), Greer, Arizona, Greer Community TV Association, Req: Channel 11, 198-204 MHz, 1 watt, Primary: KOLD-TV, Tucson, Arizona.

BPTTV-790504IA (new), Mountain City, Nevada, Mountain City TV Association, Inc., Req: Channel 11, 198-204 MHz, 1 watt, Primary: KIVI-TV, Nampa, Idaho.

BPTTV-790516IE (new), Jordan Valley, Oregon, Jordan Creek Viewers, Inc., Req: Channel 9, 186-192 MHz, 1 watt, Primary: KIVI-TV, Nampa, Idaho.

BPTTV-790703ID (new), Port Heiden, Alaska, City Of Port Heiden, Req: Channel 4, 66-72 MHz, 10 watts, Primary: KAKM-TV, KIMO-TV, KTVA-TV, & KENI-TV, Anchorage, Alaska, KUAC-TV, Fairbanks, KYUK-TV, Bethel, Alaska, & KTOO-TV, Juneau, Alaska.

BPTTV-790703IE (new), Chalkyitsik, Alaska, Chalkyitsik Village Council, Req: Channel 4, 66-72 MHz, 10 watts, Primary: KUAC-TV, Fairbanks, Alaska, KYUK-TV, Bethel, Alaska, KAKM-TV, KIMO-TV, KENI-TV, & KTVA, Anchorage, Alaska, KTOO-TV, Juneau, Alaska.

BPTTV-790703IF (new), Grayling, Alaska, City of Grayling, Req: Channel 9, 186-192 MHz, 10 watts, Primary: KAKM-TV, KIMO-TV, KENI-TV, KTVA-TV, Anchorage, Alaska, KYUK-TV, Bethel, Alaska, KUAC-TV, Fairbanks, Alaska.

BPTTV-790703IG (new), Kaltag, Alaska, Kaltag Village Council, Req: Channel 2, 54-60 MHz, 10 watts, Primary: KAKM-TV,

KIMO-TV, KTVA-TV, KENI-TV, Anchorage, Alaska, KYUK-TV, Bethel, Alaska, KTOO-TV, Juneau, Alaska, & KUAC-TV, Fairbanks, Alaska.

BPTTV-790703IH (new), Skagway, Alaska, Lynn Canal Broadcasting, Req: Channel 13, 210-216 MHz, 10 watts, Primary: KAKM-TV, KIMO-TV, KENI-TV, KTVA-TV, Anchorage, Alaska, KUAC-TV, Fairbanks, Alaska, & KYUK-TV, Bethel, Alaska.

BPTTV-790710ID (new), Bat Cave, Gerton, Chimney Rock & Lake Lure, North Carolina, Multimedia, Inc., Req: Channel 11, 198-204 MHz, 1 watt, Primary: WFBC-TV, Greenville, South Carolina.

BPTTV-790716IB (new), Old Fort & Greenlee, North Carolina, Wometco Skyway Broadcasting, Company, Req: Channel 12, 204-210 MHz, 1 watt, Primary: WLOS-TV, Asheville, North Carolina.

BPTTV-790726ID (new), Bryson City, North Carolina, Wometco Skyway Broadcasting, Company, Req: Add Ela, portions of Alaska-Lauada & portions of Almond-Stecoah, North Carolina to present principal community.

[FR Doc. 79-34073 Filed 11-2-79; 8:45 am]

BILLING CODE 5712-01-M

[PR Docket No. 79-273; File No. 73104/5/6-1B-69]

#### Hall Realty & Investment Co., Inc.; Application for Authorizations for New Facilities in the Business Radio Service

Adopted: October 23, 1979.

Released: October 29, 1979.

By the Chief, Private Radio Bureau:  
In the matter of Memorandum Opinion and Order designating application for hearing on stated issues.

1. The Chief, Private Radio Bureau (the Bureau) has before him for consideration the above-captioned applications of Hall Realty and Investment Co., Inc. (Hall), 104 Maple Court, Cayce, South Carolina 29033, for authorization of new radio facilities in the Business Radio Service. The applications initially filed June 15, 1979, were returned as defective on August 14, 1979. They were resubmitted on September 11, 1979. Also before the Bureau is information concerning an investigation conducted by the Savannah, Georgia office of the Commission's Field Operations Bureau into Hall's unlicensed operation of the radio facilities proposed in its applications.

2. It appears from the Savannah office's investigation that Hall's unlicensed operation commenced on a date which cannot yet be determined because the installation records required by the Commission's Rules were not available when the radio facilities were inspected. However, the radio system's operation continued until

it was discovered by the Field Operations Bureau on August 21, 1979. It also appears that Hall was aware that its operation of the radio facilities was unlicensed.

3. The information before the Bureau concerning Hall's unlicensed operation raises serious questions as to whether Hall possesses the requisite character qualifications or is sufficiently competent or shows sufficient interest with respect to the licensing and implementation of radio facilities to receive a grant of the authorizations which it here seeks. Because the Bureau cannot make the necessary finding, pursuant to Section 309(a) of the Communications Act of 1934, as amended, that a grant of the above-referenced applications would serve the public interest, convenience and necessity, the applications must, in accordance with Section 309(e) of the Act, be designated for hearing.

4. Accordingly, it is ordered, that in accordance with the provisions of Section 309(e) of the Communications Act of 1934, as amended (47 U.S.C. 309(e)), the above-captioned applications of Hall Realty and Investment Co., Inc., File Nos. 73104/5/6-IB-69, for authorization of new facilities in the Business Radio Service are, pursuant to authority delegated in Sections 0.131(a) and 0.331 of the Commission's Rules, designated for hearing, at a time and place to be specified at a later date, on the following issues:

(a) To determine whether Hall Realty and Investment Co., Inc., operated radio facilities in the Business Radio Service which were not licensed to it.

(b) To determine whether any unlicensed operation by Hall Realty and Investment Co., Inc., was knowing or willful or negligent.

(c) To determine, in light of the evidence adduced pursuant to issues (a) and (b) hereinabove, whether Hall Realty and Investment Co., Inc. possesses the requisite character qualifications to receive a grant of the applications which are the subject of this proceeding.

(d) To determine, in light of the evidence adduced pursuant to issues (a) and (b) hereinabove, whether Hall Realty and Investment Co., Inc. has exhibited such lack of interest or carelessness concerning conduct of its affairs with respect to the licensing and implementation of radio facilities that it should not be entrusted with the radio authorizations which it is here seeking.

(e) To determine, in light of the evidence adduced pursuant to each of the foregoing issues, what disposition of the above-captioned applications of Hall

Realty and Investment Co., Inc. will best serve the public interest, convenience and necessity.

5. It is further ordered, that Hall Realty and Investment Co., Inc. and the Chief, Private Radio Bureau are made parties in this proceeding.

6. It is further ordered, that the burden of proceeding with the introduction of evidence and the burden of proof are, pursuant to Section 309(e) of the Communications Act of 1934, as amended, and Sections 1.254 and 1.973(e) of the Commission's Rules, upon Hall Realty and Investment Co., with respect to the issues set forth in paragraph 4 hereinabove.

7. It is further ordered, that each of the parties named in paragraph 5 hereinabove, in order to avail itself of the opportunity to be heard, shall within 20 days of the mailing of this notice of designation by the Secretary of the Commission, file with the Commission, in triplicate, a written notice of appearance that it will appear on the fixed for hearing and present evidence on the issues specified in this Order, as prescribed in Section 1.221 of the Commission's Rules.

8. It is further ordered, that the Secretary of the Commission shall serve a copy of this Order, by Certified Mail, Return Receipt Requested, upon Hall Realty and Investment Co., Inc. at the address furnished in its applications. Federal Communications Commission, Carlos V. Roberts, Chief, Private Radio Bureau.

[FR Doc. 79-34070 Filed 11-2-79; 8:45 am]  
BILLING CODE 6712-01-M

[PR Docket Nos. 79-271 and 79-272]

#### Wayne D. Myers; Applications

In the matters of revocation of license of Wayne D. Myers, 2234 N. Lowell Avenue, Chicago, Illinois 60639, Licensee of Station KEM-7443 in the Citizens Band Radio Service (PR Docket No. 79-271); and application of Wayne D. Myers, 2234 N. Lowell Avenue, Chicago, Illinois 60639, For renewal of Amateur Radio Station License WB9OLJ and Amateur Technician Class Operator License (PR Docket No. 79-272). Order to show cause and designation order designating applications for consolidated hearing on stated issues.

Adopted: October 24, 1979.

Released: October 30, 1979.

The Chief, Private Radio Bureau, has under consideration, pursuant to delegated authority, the captioned station license and the captioned application.

1. Wayne D. Myers was the licensee of Amateur repeater radio station WR9ANB, which expired on April 23, 1979. He holds CB radio station license KEM-7443, granted October 8, 1976, for a five year term. He also holds a license for Amateur radio station WB9OLJ and a Technician Class Operator License.\*

2. Amateur repeater radio station WR9ANB was installed at 5415 North Sheridan Road, Chicago, Illinois. Information before the Commission indicates that during the period of October 19 to October 31, 1977, the repeater station was used for communications of a business nature by Myers and others on the frequencies, 221.960 MHz and 223.560 MHz.

Information also indicates that the use of the repeater station was made available by Myers during this period to unlicensed radio operators for the purpose of providing an automobile radiotelephone service. Information indicates that in some instances these unlicensed operators rented or leased the radio service. It appears that through an arrangement with Myers, these unlicensed persons operated radio transmitters from their vehicles and were connected by radio through repeater station WR9ANB to the telephone lines, enabling them to dial calls from their vehicles. It appears that these unlicensed operators also used the repeater for communications of a commercial nature. Finally, information indicates that the use of the repeater by Myers and by unlicensed persons was pursuant to a scheme by Myers to supply commercial radiotelephone service, for a fee, by means of the Amateur radio facility.

3. It appears that at various times during the period from October 19, to October 31, 1977, repeater station WR9ANB was operated without being identified by call sign. Information further indicates that on October 29, 1977, Myers retransmitted through WR9ANB a program emanating from a non-commercial FM Broadcast station. The information further indicates that Myers transmitted over the repeater third party radio communications consisting of business communication on October 19, 20, 27, 28 and 31, 1977.

4. Section 97.61(c) of the Commission's Rules did not authorize Amateur radio operators to operate a repeater radio station on the frequency 221.960 MHz.<sup>1</sup>

\*WB9OLJ and the Technician Operator's licenses expired on April 23, 1979, but a timely renewal application has been filed and Myers has continuing operating authority, pursuant to Section 97.13(c) of the Commission's Rules.

<sup>1</sup>Effective January 1979, certain sections of the Amateur rules were revised and renumbered. The Footnotes continued on next page



Section 97.87(c) of the Rules required that repeater stations be identified when in service in intervals not to exceed five minutes and Section 97.87(a) required other Amateur stations to identify every ten minutes.<sup>2</sup> Section 97.113 prohibits the retransmission by Amateur stations of programs or signals emanating from any class of stations other than Amateur. Section 97.114 prohibits the transmission of third party traffic involving material compensation of any kind to any person. It also prohibits third party traffic consisting of business communications in behalf of any party.

5. Information before the Commission indicates that on July 19, 1976, Myers accepted a sum of money in order to obtain an Amateur radio license for another by fraudulent means. Information also indicates that Myers attempted to obtain Amateur radio licenses for others by fraudulent means, and accepted money for that purpose. It appears that these persons had been promised the use of the repeater without having to take an Amateur radio examination, as part of the scheme by Myers to supply commercial radiotelephone service, for a fee, by means of the Amateur radio facility. Section 97.129 of the Rules prohibits an Amateur operator from obtaining or attempting to obtain, or assisting another to obtain or attempt to obtain, an Amateur radio license by fraudulent means.

6. The conduct outlined above, except for the alleged violation of 97.129, was brought to the attention of Myers by Notice of Violation sent on November 3, 1977. The violations raise questions as to the qualifications of Myers to be a licensee of the Commission.

7. Section 312(a)(2) of the Communications Act of 1934, as amended, provides that the Commission may revoke a license because of conditions coming to the Commission's attention which would warrant its refusing to grant a license based on an original application. Section 312(a)(4) of the Act provides that a radio station license may be revoked for wilful or repeated violation of the Act or Commission Rules. Section 309(e) of the Communications Act requires the Commission to designate an application for hearing where it cannot find that a grant of the application would serve the public interest, convenience and necessity. Accordingly, *It is ordered* That Myers show cause why the license

for the captioned radio station should not be revoked. It is further ordered, that if Myers wants a hearing on the revocation matter, he must file a written request for a hearing within 30 days. If a hearing is requested the time, place and Presiding Judge will be specified by subsequent order.

9. It is further ordered, that if Myers waives his right to a hearing, this proceeding will be certified to the Commission for administrative disposition pursuant to § 1.92(c) of the Rules.

10. It is further ordered, that the matters in this proceeding will be resolved upon the following issues:

(a) Whether Myers operated a radio station in wilful or repeated violation of §§ 97.61(c), 97.87(a), 97.87(c), 97.113 and/or 97.114 of the Commission's Rules.

(b) Whether Myers wilfully or repeatedly violated § 97.129 of the Rules.

(c) Whether, and if so, to what extent, Myers participated in a scheme to supply commercial radiotelephone service, for a fee, by means of Amateur radio repeater station WR9ANB.

(d) Whether, in light of the evidence adduced pursuant to Issues (a), (b) and (c), Myers possesses the requisite qualifications to remain a licensee of the Commission.

(e) Whether, based on the evidence adduced under Issues (a), (b), (c) and (d), Myers license for CB radio station KFM-7443 should be revoked.

11. It is further ordered, that, pursuant to Sections 309(e) of the Communications Act of 1934, as amended, and 1.973(b) and 0.331 of the Rules, Myers' application for renewal of Amateur radio station license WB9OLJ and of Technician Class Operator license is designated for hearing, at a time and place to be specified by subsequent order, upon the preceding issues of paragraph 10 and the following issue:

Whether, in light of the evidence adduced under Issues (a), (b), (c), (d) and (e), the public interest, convenience and necessity would be served by a grant of the application of Wayne D. Myers for renewal of Amateur radio station license WB9OLJ and of Technician Class Operator License.

12. It is further ordered, that in order to obtain a hearing on the application, Myers, in person or by attorney, shall within 30 days of the mailing of this Order, file with the Commission in triplicate a written appearance stating an intent to appear on a date fixed for hearing to present evidence on the issues specified in the foregoing paragraph.<sup>1</sup> Failure to file a written

appearance within the time specified will result in the dismissal of the application with prejudice.

13. It is further ordered, that the burden of proceeding with the introduction of evidence and the burden of proof for revocation of the CB station license (PR Docket No. 79-271) are on the Bureau pursuant to Section 312(d) of the Communications Act; and the burden of proof for grant of the application (PR Docket No. 79-272) is on the applicant pursuant to Section 309(e) of the Act.

14. It is further ordered, pursuant to § 1.227 of the Commission's Rules, that the proceeding on the above issues regarding the Order to Show Cause and Designation are consolidated for hearing.

15. It is further ordered, that a copy of this Order shall be sent by Certified Mail—Return Receipt Requested and by Regular Mail to the licensee at his address of record as shown in the caption.

Chief, Private Radio Bureau.  
Mary M. Fitzgerald,  
Acting Chief, Compliance Division.

[FR Doc. 79-34071 Filed 11-2-79; 8:45 am]  
BILLING CODE 6712-01-M

#### [FCC 79-713]

#### Commission Revises Procedures for Handling of Requests for Witness Immunity in Adjudicatory Proceedings

October 29, 1979.

It has been the practice in proceedings before the FCC for an immunity requester to file the request directly with the Commission rather than the presiding officer for this consideration. We believe that a more efficient procedure would be to have the presiding officer, who is familiar with the case, make the public interest determination required by 18 U.S.C. § 6004. We know of no statutory or case law requirement which would preclude this approach. Moreover, we think that the authority to decide immunity requests is included in the ALJ's inherent authority as presiding officer. See Sections 0.341 and 1.243 of the Commission's Rules; The Communications Act of 1934 as Amended, Section 5(d)(1); Administrative Procedure Act as Amended, 5 U.S.C. § 556; and Davis, I Administrative Law Treatise § 3:18 (second ed. 1978). In the future, once the presiding officer has determined that the § 6004 public interest showing has been made, he should forward his ruling along with the pleadings containing that showing to the Office of the General

Footnotes continued from last page  
sections cited are those in effect at the time of the operation.

<sup>2</sup> These provisions are now contained in Section 97.84.

<sup>1</sup> The 20 day time period specified by § 1.221 of the Rules is waived.

Counsel. In turn, the General Counsel shall communicate with the proper officials in the Department of Justice to obtain the Attorney General's approval as required by § 6004.

Action by the Commission October 25, 1979. Commissioners Ferris (Chairman), Lee, Quello, Washburn, Fogarty, Brown and Jones.

Federal Communications Commission.

William J. Tricarico,

Secretary.

[FR Doc. 79-34072 Filed 11-2-79; 8:45 am]

BILLING CODE 6712-01-M

## FEDERAL LABOR RELATIONS AUTHORITY

### Issuance of Policy Statement on Obligation To Negotiate During Term of Collective Bargaining Agreement

**AGENCY:** Federal Labor Relations Authority.

**ACTION:** Notice Relating to the Issuance of a Policy Statement.

**SUMMARY:** This notice relates to the question of whether the Federal Labor Relations Authority should issue a policy statement on the obligation to negotiate during the term of a collective bargaining agreement with respect to both matters covered by the agreement and matters not covered by the agreement and invites written comments concerning this matter.

**DATE:** Written comments must be submitted by the close of business on December 7, 1979, to be considered.

**ADDRESS:** Send written comments to the Federal Labor Relations Authority, 1900 E Street, NW., Washington, D.C. 20424.

**FOR FURTHER INFORMATION CONTACT:** Harold D. Kessler, Executive Director, 1900 E Street, NW., Washington, D.C. 20424, (202) 632-3920.

**SUPPLEMENTARY INFORMATION:** The Federal Labor Relations Authority was established by Reorganization Plan No. 2 of 1978, effective January 1, 1979 (43 FR 36037). Since January 11, 1979, the Authority has conducted its operations under the Federal Service Labor-Management Relations Statute (92 Stat. 1191).

The Authority has received a request that it issue a general statement of policy or guidance in accordance with § 2427.2 of its rules and regulations. Interested persons are invited to express their views in writing as to whether the Authority should issue a policy statement, as more fully explained in the Authority's notice set forth below:

### Notice (November 5, 1979)

To Heads of Agencies, Presidents of Labor Organizations and Other Interested Persons:

The Authority has received a request from the American Federation of Government Employees (AFGE) that the Authority issue a general statement of policy or guidance as to the obligation to negotiate during the term of a collective bargaining agreement with respect to both matters covered by the agreement and matters not covered by the agreement. The question before the Authority at this time is whether it should issue a policy statement on this matter. The specific matter at issue, substantially as stated by AFGE, is as follows:

Does the employer, in a bargaining relationship, have an obligation to bargain at the demand of the exclusive representative on a mandatory subject for bargaining during the term of an agreement, whether the matter upon which bargaining is demanded is covered by the terms of a collective bargaining agreement or not? Styled from the exclusive representative's perspective, does the union have the right to demand bargaining on a matter covered by the terms of an agreement or not covered in an agreement, and have the employer bargain in good faith?

Before determining whether issuance of a policy statement on this matter is warranted, in conformity with § 2427.4 of its rules and regulations, the Authority solicits your views in writing. To receive consideration, such views must be submitted to the Authority by the close of business on December 7, 1979.

Issued: Washington, D.C., November 5, 1979.

Federal Labor Relations Authority.

Ronald W. Haughton,

Chairman.

Henry B. Frazier III,

Member.

Leon B. Applewhaite,

Member.

[FR Doc. 79-34077 Filed 11-2-79; 8:45 am]

BILLING CODE 6325-01-M

## FEDERAL MARITIME COMMISSION

### Agreements Filed

The Federal Maritime Commission hereby gives notice that the following agreements have been filed with the Commission for approval pursuant to section 15 of the Shipping Act, 1916, as amended (39 Stat. 733, 75 Stat. 763, 46 U.S.C. 814).

Interested parties may inspect and obtain a copy of each of the agreements

and the justifications offered therefor at the Washington Office of the Federal Maritime Commission, 1100 L Street, NW., Room 10218; or may inspect the agreements at the Field Offices located at New York, N.Y.; New Orleans, Louisiana; San Francisco, California; Chicago, Illinois; and San Juan, Puerto Rico. Interested parties may submit comments on each agreement, including requests for hearing, to the Secretary, Federal Maritime Commission, Washington, D.C., 20573, on or before November 26, 1979. Comments should include facts and arguments concerning the approval, modification, or disapproval of the proposed agreement. Comments shall discuss with particularity allegations that the agreement is unjustly discriminatory or unfair as between carriers, shippers, exporters, importers, or ports, or between exporters from the United States and their foreign competitors, or operates to the detriment of the commerce of the United States, or is contrary to the public interest, or is in violation of the Act.

A copy of any comments should also be forwarded to the party filing the agreements and the statement should indicate that this has been done.

Agreement No.: 50-37.

Filing Party: A. H. Eber, Secretary, Pacific Coast-Australasian Tariff Bureau, 320 California Street, Suite 600, San Francisco, California 94120.

Summary: Agreement No. 50-37 would change the name of the Pacific Coast-Australasian Tariff Bureau to that of the Pacific/Australia-New Zealand Conference.

Agreement No.: DC-148.

Filing Party: Joseph J. Fannelli, Division Manager, Pricing and Conference Affairs, United States Lines, Inc., 1579 Middle Harbor Road, Oakland, California 94607.

Summary: Agreement No. DC-148 establishes an arrangement between American President Lines and U.S. Lines, whereby the parties agree to employ the Adherence Group (TAG) as an independent enforcement authority to conduct the following activities with respect to cargoes moving between Agana, Guam and ports in the U.S.A.: (a) Cargo inspection, (b) correction of billings and the collection of undercharges, and (c) the billing and collection of storage and detention charges.

Agreement No.: T-3844-1.

Filing Party: H. H. Wittren, Manager, Waterfront Real Estate, Port of Seattle, P.O. Box 1209, Seattle, Washington 98111.

Summary: Agreement No. T-3844-1, between the Port of Seattle (Port) and Associated Transportation Center, Inc. (Associated), modifies the parties' basic agreement which provides for the month-to-month lease of 58,882 square feet of warehouse space and an office trailer at Terminal 106-W in the Port of Seattle for use in container freight station activities. The purpose of the modification is to increase the

size of the leased area by 40,360 square feet with a corresponding increase in rental.

Agreement No.: T-3852-B.

Filing Party: Wallace Aiken, Esquire, Aiken, St. Louis & Siljeg, 1215 Norton Building, Seattle, Washington 98104.

Summary: Agreement No. T-3852-B, between the City of Kodiak, Alaska (City) and Alaska Terminal and Stevedoring, Inc. (AT&S), provides for the five-year lease by the City to AT&S of a warehouse to be used for the storage, loading and unloading of freight. AT&S shall make such premises available on an equal basis to all carriers with space allocated proportionate to such carrier's need. AT&S shall compensate the City according to a schedule of rental fees as mutually agreed upon.

Agreement No.: T-3873.

Filing Party: W. H. Black, Jr., Chief, Administrative Officer, Alabama State Docks Department, P.O. Box 1588, Mobile, Alabama 36601.

Summary: Agreement No. T-3873, between the Alabama State Docks Department (ASDD) and Hill's Marine, Inc. (Hill's), provides for the lease of land and paved storage area on the Tennessee River at Florence, Alabama, to Hill's to be used for marine repair, barge loading and unloading, and freight or cargo storage. As compensation, Hill's will pay ASDD an annual rental of \$69,000.00, as well as wharfage and other charges set forth in the agreement. The initial term of the lease is ten years, with six successive five-year renewal options.

Agreement No.: T-3874.

Filing Party: W. H. Black, Jr., Chief, Administrative Officer, Alabama State Docks Department, P.O. Box 1588, Mobile, Alabama 36601.

Summary: Agreement No. T-3874, between the Alabama State Docks Department (ASDD) and International Minerals & Chemical Corporation (IMCC), provided for the lease of warehouse, office and garage space at the Florence State Dock in Lauderdale County, Alabama for the purpose of operating a fertilizer and/or fertilizer materials warehouse facility. As compensation, IMCC will pay ASDD an annual rental of \$74,304.00, as well as wharfage and other charges set forth in the agreement. The initial term of the lease is three years, with three one-year renewal options.

Agreement No.: 9984-16.

Filing Party: Howard A. Levy, Esq., Attorney at Law, Suite 727, 17 Battery Place, New York, New York 10004.

Summary: Agreement No. 9984-16 would amend the South Atlantic North Europe Rate Agreement for the purpose of incorporating procedures for exercising the existing right of independent action. The basic agreement provided that any party taking independent action must first give the other parties at least forty-eight (48) hours' advance notice thereof.

Agreement No.: 10247-2.

Filing Party: Neal M. Mayer, Esquire, Coles & Goertner, 1000 Connecticut Avenue NW., Washington, D.C. 20036.

Summary: Agreement No. 10247 is a proposal by the parties to the Australian Loading Expense Agreement to extend the life of the agreement for 12 months, to December 31, 1980. The basic agreement provided for the payment of a specific premium for each ton of cargo loaded in Northwest Australian ports, to defray the additional costs of serving such ports.

Agreement No.: 10320-2.

Filing Party: Frank R. A. Levier, Executive Administrator, Conferencia Interamericana de Fretes, Av. Rio Branco, 156 - 27º. Andar - Grupos 2707/2711 - 2733/4, Rio de Janeiro, Brazil.

Summary: Agreement No. 10320-2, among members lines of the Brazil/U.S. Gulf Pooling Agreement, is a refiling of Agreement no 10320-1, notice of which appeared in the Federal Register on April 3, 1978. In addition to restating Agreement No. 10320-1, Agreement No. 10320-2 provides for further changes as follows: (1) revise membership to include Companhia de Navegacao Lloyd Brasileiro, Companhia Maritima Nacional, Delta Steamship Lines, Inc., Empresa Lineas Maritimas Argentinas S. A. (ELMA), A. Bottacchi S. A. de Navegacion C. F. L. e L. (Bottacchi), and Montemar S. A. Commercial Y Maritima; (2) amend the individual shares agreed to by the above named lines; (3) add "wood in minimum lots of 1,000 tons" as an exception to cargo subject to the pool; and (4) amend minimum number of sailing and minimum number of direct calls at principal Brazilian ports for ELMA/Bottacchi as set forth in Articles 5(a) and 5(b).

By Order of the Federal Maritime Commission.

Dated: October 30, 1979.

Francis C. Hurney,  
Secretary.

[FR Doc. 79-34041 Filed 11-2-79; 8:45 am]

BILLING CODE 6730-01-M

## DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

### National Institute of Education

#### Unsolicited Proposals To Conduct Educational Research and Development; Change in Closing Date for Receipt of Proposals

As announced in the Federal Register on July 6, 1979, 44 FR 39619, December 31, 1979 was designated as one of the closing dates for receipt of unsolicited proposals. Since this date is a Sunday and falls during the holiday season, the Institute redesignates January 3 for 1980 and subsequent years as the closing date for receiving proposals under the second cycle of the unsolicited proposals program.

Unsolicited proposals may be submitted at any time, but awards will usually be made twice a year July/

August and January/February based upon competitive reviews of proposals received by January 3 and June 30, respectively.

Additional information may be obtained from the Unsolicited Proposal Coordinator, Warren Kaufman, National Institute of Education, Room 682, 1200 19th Street, N.W., Washington, D.C. 20208; 202-254-7920.

Dated: October 31, 1979.

John W. Christensen,  
Associate Director for Administration,  
Management and Budget.

[FR Doc. 79-34083 Filed 11-2-79; 8:45 am]

BILLING CODE 4110-39-M

### Office of Education

#### Guaranteed Student Loan Program; Special Allowance for Quarter Ending September 30, 1979

The Commissioner announces that for the three-month period ending September 30, 1979, and under the statutory formula of section 438(b) of the Higher Education Act of 1965, a special allowance at an *annual rate* of six and five-eighths percent will be paid to holders of eligible loans in the Guaranteed Student Loan Program.

Using the statutory formula, the special allowance for this *three-month* period was computed by determining the average of the bond equivalent rates of the 91-day Treasury bills for this period (10.02 percent), by subtracting 3.5 percent from this average, by rounding the resultant percent (6.52) upward to the nearest one-eighth of one percent (6.625), and by dividing the resultant percent by four (1.65625 percent). Thus, the special allowance to be paid for this period will be 1.65625 percent of the average unpaid balance of principal (not including unearned interest added to principal) of all eligible loans held by lenders.

The public is advised that a recently enacted statute (Pub. L. 96-49, August 13, 1979) eliminates the 5 percent ceiling that previously applied to the special allowance over each twelve-month period.

(20 U.S.C. 1067-1)

(Catalog of Federal Domestic Assistance No. 13.460, Guaranteed Student Loan Program)  
(20 U.S.C. 1987-1(b))

Dated: October 30, 1979.

John Ellis,  
Executive Deputy Commissioner for  
Educational Programs.

[FR Doc. 79-34087 Filed 11-2-79; 8:45 am]

BILLING CODE 4110-02-M

# Health Education Assistance Loan Program; Variable Interest Rate for Quarter Ending December 31, 1979

The Commissioner announces that for the three month period ending December 31, 1979, the variable interest rate on loans in the Health Education Assistance Loan (HEAL) Program shall be at the annual rate of 11½ percent.

Using the regulatory formula (45 CFR 126.13(a)(2) and (3)), the Commissioner normally would compute the variable rate for this three month period by adding the fixed annual rate (7 percent) plus a variable component which is calculated by determining the average of the bond equivalent rate of the 91-day Treasury bills for the preceding calendar quarter (10.02 percent), by subtracting 3.5 percent from that average, and by rounding the resultant percent (6.52) upward to the nearest one-eighth of one percent (6.625).

However, the regulatory formula also provides that the annual rate of the variable interest rate for a three month period shall be reduced to the highest one-eighth of one percent which would result in a rate not in excess of 12 percent for any twelve month period. For the three previous quarters the variable interest at the annual rate has been as follows: 12½ percent for the quarter ending March 31, 1979; 13¼ percent for the quarter ending June 30, 1979, and 11 percent for the quarter ending September 30, 1979. Therefore, in order not to exceed the rate of 12 percent for the twelve month period ending December 31, 1979, the variable interest rate for the quarter ending December 31, 1979, will be an annual rate of 11½ percent.

(Catalog of Federal Domestic Assistance No. 13.574, Health Professions Educational Assistance Act Insured Loans.)

Dated: October 30, 1979.

John Ellis,  
Executive Deputy Commissioner for  
Educational Programs.

[FR Doc. 79-34098 Filed 11-2-79; 8:45 am]

BILLING CODE 4110-02-M

# National Advisory Council on Extension and Continuing Education; Meeting

**AGENCY:** National Advisory Council on Extension and Continuing Education.

**ACTION:** Notice of Meeting.

**SUMMARY:** This notice sets forth the schedule and proposed agenda of a meeting of the Title I Committee of the National Advisory Council on Extension and Continuing Education. It also describes the functions of the Council.

Notice of meetings is required under the Federal Advisory Committee Act (5 U.S.C. Appendix 1, 10(a)(2)). This document is intended to notify the general public of their opportunity to attend the meeting.

**DATE:** November 18, 1979.

**ADDRESS:** United Airlines Red Carpet Lounge, Detroit Airport, Detroit, Michigan.

**FOR FURTHER INFORMATION:** Jessie K. Ulin, Director of Research and Evaluation, National Advisory Council on Extension and Continuing Education, 425 Thirteenth Street, NW.; Suite 529, Washington, D.C. 20004 Telephone: (202) 376-8888.

The National Advisory Council on Extension and Continuing Education is authorized under Pub. L. 89-329. The Council is required to report annually to the President, the Congress, the Secretary of HEW, and the Commissioner of Education in the preparation of general regulations and with respect to policy matters arising in the administration of Part A of Title I (HEA), including policies and procedures governing the approval of State plans under section 105; and to advise the Assistant Secretary of HEW on Part B (Lifelong Learning Activities) of the title.

The meeting of the Title I Committee is open to the public. However, because of limited space, those interested in attending the meeting are asked to call the Council's office beforehand. Available seats will be assigned on a first-come basis. The meeting of the Title I Committee will begin on November 18 at 12:30 p.m. and adjourn at 4:30 p.m.

The agenda will include:

- a review of the status report of the evaluation of Federal administration of the Title I (HEA) program.
- a review of House and Senate proposals to amend Title I, HEA, and
- identification of gaps in policy-relevant data about the Title I program and alternative strategies for obtaining the necessary information.

All records of the Council proceedings are available for public inspection at the Council's staff office, located in Suite 529, 425 Thirteenth Street, NW., Washington, D.C.

Dated: October 31, 1979.

Jessie K. Ulin,  
Director, Research and Evaluation.

[FR Doc. 79-34136 Filed 11-2-79; 8:45 am]

BILLING CODE 4110-02-M

# DEPARTMENT OF THE INTERIOR

## Bureau of Land Management

[NM 38722]

## New Mexico Principal Meridian; Application

October 29, 1979.

Notice is hereby given that, pursuant to section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. 185), as amended by the Act of November 16, 1973 (87 Stat. 576), Gas Company of New Mexico has applied for one 4-inch natural gas pipeline right-of-way across the following land:

New Mexico Principal Meridian, New Mexico  
T. 26 N., R. 8 W.,  
Sec. 6, SE¼NE¼.

This pipeline will convey natural gas across 0.112 of a mile of public land in San Juan County, New Mexico.

The purpose of this notice is to inform the public that the Bureau will be proceeding with consideration of whether the application should be approved, and if so, under what terms and conditions.

Interested persons desiring to express their views should promptly send their name and address to the District Manager, Bureau of Land Management, P.O. Box 6770, Albuquerque, New Mexico 87107.

Pauline T. Brown,  
Acting Chief, Lands Section.

[FR Doc. 79-34127 Filed 11-2-79; 8:45 am]

BILLING CODE 4310-84-M

[NM 38725 and 38731]

## New Mexico; Applications

October 29, 1979.

Notice is hereby given that, pursuant to section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. 185), as amended by the Act of November 16, 1973 (87 Stat. 576), Northwest Pipeline Corporation has applied for two 4½-inch natural gas pipeline rights-of-way across the following land:

New Mexico Principal Meridian, New Mexico  
T. 32 N., R. 8 W.,  
Sec. 11, lot 11.  
T. 30 N., R. 14 W.,  
Sec. 14, SW¼NE¼ and N¼SE¼.

These pipelines will convey natural gas across 0.509 of a mile of public lands in San Juan County, New Mexico.

The purpose of this notice is to inform the public that the Bureau will be proceeding with consideration of whether the applications should be approved, and if so, under what terms and conditions.

Interested persons desiring to express their views should promptly send their name and address to the District Manager, Bureau of Land Management, P.O. Box 6770, Albuquerque, New Mexico 87107.

Pauline T. Brown,  
*Acting Chief, Lands Section.*

[FR Doc. 79-34128 Filed 11-2-79; 8:45 am]

BILLING CODE 4310-84-M

## National Park Service

### Intention To Negotiate Concession Contract

Pursuant to the provisions of Section 5 of the Act of October 9, 1965 (79 Stat. 969; 16 U.S.C. 20), public notice is hereby given that thirty (30) days after the date of publication of this notice, the Department of the Interior, through the Director of the National Park Service, proposes to negotiate a concession contract with Bryce-Zion Trail Rides, Inc., authorizing it to continue to provide saddle service, including, but not limited to, rental of saddle and pack animals, and their equipment; commercial guides and pack services, and pack trips for the public at Bryce Canyon and Zion National Parks for a period of five (5) years from January 1, 1980 through December 31, 1984.

An assessment of the environmental impact of this proposed action has been made and it has been determined that it will not significantly affect the quality of the environment, and that it is not a major Federal action having a significant impact on the environment under the National Environmental Policy Act of 1969. The environmental assessment may be reviewed in the Offices of the Superintendents, Bryce Canyon and Zion National Parks.

The foregoing concessioner has performed its obligations to the satisfaction of the Secretary under an existing contract which expires by limitation of time on December 31, 1979, and therefore, pursuant to the Act of October 9, 1965, as cited above, is entitled to be given preference in the renewal of the contract and in the negotiation of a new contract. This provision, in effect, grants Bryce-Zion Trail Rides, Inc., as the present satisfactory concessioner, the right to meet the terms of responsive offers for the proposed new contract and a preference in the award of the contract, if, thereafter, the offer of Bryce-Zion Trail Rides, Inc., is substantially equal to others received. The Secretary is also required to consider an evaluate all proposals received as a result of this notice. Any proposal to be considered

and evaluated must be submitted within thirty (30) days after the publication date of this notice.

Interested parties should contact the Regional Director, Rocky Mountain Region, National Park Service, 655 Parfet Street, Denver, Colorado 80225, for information as to the requirements of the proposed contract.

Dated: August 8, 1979.

James B. Thompson.

*Acting Regional Director, Rocky Mountain Region.*

[FR Doc. 79-34079 Filed 11-2-79; 8:45 am]

BILLING CODE 4310-70-M

## LEGAL SERVICES CORPORATION

### Grants and Contracts

October 29, 1979.

The Legal Services Corporation was established pursuant to the Legal Services Corporation Act of 1974, Pub. L. 93-355a, 88 Stat. 378, 42 U.S.C. 2996-2996f, as amended, Pub. L. 95-222 (December 28, 1977). Section 1007(f) provides: "At least thirty days prior to the approval of any grant application or prior to entering into a contract or prior to the initiation of any other project, the Corporation shall announce publicly \* \* \* such grant, contract, or project \* \* \*."

The Legal Services Corporation hereby announces publicly that it is considering the grant application submitted by:

Southern Arizona Legal Aid, Inc. in Tucson, Arizona to serve Navajo and Apache Counties.

Interested persons are hereby invited to submit written comments or recommendations concerning the above application to the Regional Office of the Legal Services Corporation at: Legal Services Corporation, Denver Regional Office, 1726 Champa Street, Suite 500, Denver, Colorado 80202.

Dan J. Bradley,

*President.*

[FR Doc. 79-34062 Filed 11-2-79; 8:45 am]

BILLING CODE 6820-35-M

## NATIONAL FOUNDATION ON THE ARTS AND THE HUMANITIES

### Expansion Arts Panel; Meeting

Pursuant to section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Expansion Arts Panel to the National Council on the Arts will be held November 27, 1979 from 9:00 a.m.-5:30 p.m.; November 28, 1979 from 9:00 a.m.-5:30 p.m.; and November 29, 1979 from 9:00 a.m.-5:30

p.m. in Room 1422 of the Columbia Plaza Office Building, 2401 E. St., NW., Washington, D.C.

A portion of this meeting will be open to the public on November 27, 1979 from 9:00 a.m.-12:00 a.m. Policy will be discussed.

The remaining sessions of this meeting on November 27, 1979 from 12:00 a.m.-5:30 p.m.; November 28, 1979 from 9:00 a.m.-5:30 p.m.; and November 29, 1979 from 9:00 a.m.-5:30 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including discussion of information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the Federal Register, March 17, 1977, these sessions will be closed to the public pursuant to subsections (c) (4), (6) and 9(b) of section 552b of Title 5, United States Code.

Further information with reference to this meeting can be obtained from Mr. John H. Clark, Advisory Committee Management Officer, National Endowment for the Arts, Washington, D.C. 20506, or call (202) 634-6070.

John H. Clark,

*Director, Office of Council and Panel Operations, National Endowment for the Arts.*

[FR Doc. 79-34129 Filed 11-02-79; 8:45 am]

BILLING CODE 7537-01-M

### Media Arts Panel (AFI); Meeting

Pursuant to Section 10 (a) (2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Media Arts Panel (AFI) to the National Council on the Arts will be held November 15, 1979, from 9:00 a.m.-5:30 p.m. and November 16, 1979, from 9:00 a.m.-5:30 p.m. in Room 1422 of the Columbia Plaza Office Building, 2401 E St., NW., Washington, D.C. 20506.

This meeting is for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including discussion of information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the Federal Register of March 17, 1977, these sessions will be closed to the public pursuant to subsection (c) (4), (6) and 9 (B) of section 552b of Title 5, United States Code.

Further information with reference to this meeting can be obtained from Mr. John H. Clark, Advisory Committee Management Officer, National Endowment for the Arts, Washington, D.C. 20506, or call (202) 634-6070.

John H. Clark,  
*Director, Office of Council and Panel Operations, National Endowment for the Arts.*  
October 31, 1979.

[FR Doc. 79-34113 Filed 11-2-79; 8:45 am]  
BILLING CODE 7537-01-M

#### Theatre Panel Meeting

Pursuant to section 10 (a) (2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Theatre Panel to the National Council on the Arts will be held November 27, 1979 from 9:00 a.m.-5:30 p.m. and November 28, 1979 from 9:00 a.m.-5:30 p.m. at the Mark Taper Forum, 135 N. Grand Avenue, Los Angeles, California.

A portion of this meeting will be open to the public on November 27, 1979 from 1:00 p.m.-5:30 p.m. Policy will be the topic of discussion.

The remaining sessions of this meeting on November 27, 1979 from 9:00 a.m.-1:00 p.m. and November 28, 1979 from 9:00 a.m.-5:30 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including discussion of information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the Federal Register March 17, 1977, these sessions will be closed to the public pursuant to subsections (c) (4), (5) and 9(b) of section 552b of Title 5, United States Code.

Further information with reference to this meeting can be obtained from Mr. John H. Clark, Advisory Committee Management Officer, National Endowment for the Arts, Washington, D.C. 20506, or call (202) 634-6070.

John H. Clark,  
*Director, Office of Council and Panel Operations, National Endowment for the Arts.*

[FR Doc. 79-34131 Filed 11-2-79; 8:45 am]  
BILLING CODE 7537-01-M

#### Visual Arts Panel (Crafts apprenticeships); Meeting

Pursuant to section 10 (a) (2) of the Federal Advisory Committee Act (Pub. L. 92-463), as amended, notice is hereby given that a meeting of the Visual Arts Panel (Crafts Apprenticeships) to the

National Council on the Arts (which appeared in the Federal Register Vol. 44, No. 205, pg. 60330, Monday, October 22, 1979) is amended as follows: November 7, 1979 from 9:30 a.m.-5:30 p.m. and November 8, 1979 from 9:30 a.m.-1:00 p.m. The meeting will be held in Room 1422 of the Columbia Plaza Office Building, 2401 E St., N.W., Washington, D.C.

A portion of this meeting will be open to the public on November 8, 1979 from 9:30 a.m.-1:00 p.m. The topic of discussion will be policy.

The remaining sessions of this meeting on November 7, 1979 from 9:30 a.m.-5:30 p.m. are for the purpose of Panel review, discussion, evaluation, and recommendation on applications for financial assistance under the National Foundation on the Arts and the Humanities Act of 1965, as amended, including discussion of information given in confidence to the agency by grant applicants. In accordance with the determination of the Chairman published in the Federal Register March 17, 1977, these sessions will be closed to the public pursuant to subsections (c) (4), (5) and 9(b) of section 552b of Title 5, United States Code.

Further information with reference to this meeting can be obtained from Mr. John H. Clark, Advisory Committee Management Officer, National Endowment for the Arts, Washington, D.C. 20506, or call (202) 634-6070.

John H. Clark,  
*Director, Office of Council and Panel Operations, National Endowment for the Arts.*

[FR Doc. 79-34130 Filed 11-02-79; 8:45 am]  
BILLING CODE 7537-01-M

#### NATIONAL SCIENCE FOUNDATION

##### Permit Applications Received Under the Antarctic Conservation Act of 1978

**AGENCY:** National Science Foundation.

**ACTION:** Notice of Permit Applications Received Under Antarctic Conservation Act of 1978, Pub. L. 95-541.

**SUMMARY:** The National Science Foundation (NSF) is required to publish notice of permit applications received to conduct activities regulated under the Antarctic Conservation Act of 1978. NSF has published regulations under the Antarctic Conservation Act of 1978 at Title 45 Part 670 of the Code of Federal Regulations. This is the required notice of permit applications received.

**DATES:** Interested parties are invited to submit written data, comments, or views with respect to these permit applications by December 5, 1979. Permit applications may be inspected by

interested parties at the Permit Office, address below.

**ADDRESS:** Comments should be addressed to Permit Office, Room 627, Division of Polar Programs, National Science Foundation, Washington, D.C. 20550.

**FOR FURTHER INFORMATION CONTACT:** Charles E. Myers at the above address or (202) 632-4238.

**SUPPLEMENTAL INFORMATION:** The National Science Foundation, as directed by the Antarctic Conservation Act of 1978 (Public Law 95-541), has developed regulations that implement the "Agreed Measures for the Conservation of Antarctic Fauna and Flora" for all United States citizens. The Agreed Measures, developed in 1964 by the Antarctic Treaty Consultative Parties, recommended establishment of a permit system for various activities in Antarctica and designation of certain mammals and certain geographic areas as requiring special protection. The regulations establish such a permit system and a way to designate Specially Protected Areas and Sites of Special Scientific Interest. The regulations were presented for public comment in draft form in the 6 March 1979 Federal Register. They appeared in final form in the 7 June 1979 Federal Register. Additional information was published in the 11 October 1979 Federal Register, page 58818.

The application received is:

1. Applicant: John G. Baust, Department of Biology, University of Houston, Houston, Texas 77004.

##### Activity for which Permit Requested

Take Plants (Hand collect up to 4 kgs. moss, 4 kgs. alga). Collection of plants is incidental to collection of terrestrial invertebrates. Requires extraction from moss and algal materials. Plant material will be removed, extracted by gradual warming to force out arthropods and then replaced in exact site from which it was collected. Some plant material will be homogenized for assays.

Enter Specially Protected Area-Litchfield Island.

Enter Site of Special Scientific Interest—Byers Peninsula.

##### Location

Litchfield Island, Byers Peninsula.

##### Dates

October 30, 1979—March 10, 1980.

Authority to take this action has been delegated by the Director, NSF to the Director, Division of Polar Programs under National Science Foundation Staff



Memorandum O/D 79-16, of May 29, 1979.

Edward P. Todd,  
Director, Division of Polar Programs.

[FR Doc. 79-34067 Filed 11-2-79; 8:45 am]

BILLING CODE 7555-01-M

## NUCLEAR REGULATORY COMMISSION

[Docket No. 50-116]

### Iowa State University; Proposed Renewal of Facility License

The United States Nuclear Regulatory Commission (the Commission) is considering renewal of Facility License No. R-59, issued to Iowa State University (the Licensee), for operation of the Argonaut Model UTR-10 training and research reactor located on the licensee's campus at Ames, Iowa.

The renewal would extend the expiration date of Facility License No. R-59 to October 12, 1999, in accordance with the licensee's timely application for renewal dated September 5, 1979.

Prior to renewal of the license, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

By December 5, 1979, the licensee may file a request for a hearing with respect to renewal of the subject facility license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written petition for leave to intervene. Requests for a hearing and petitions for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) The nature of the petitioner's right under the Act to be made a party to the proceeding; (2) the

nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to fifteen (15) days prior to the first prehearing conference scheduled in the proceeding but such an amended petition must satisfy the specificity requirements described above.

Not later than fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter, and the bases for each contention set forth with reasonable specificity. Contentions shall be limited to matters within the scope of the renewal action under consideration. A petitioner who fails to file such a supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

A request for a hearing or a petition for leave to intervene shall be filed with the Secretary of the Commission, United States Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Section, or may be delivered to the Commission's Public Document Room 1717 H Street, NW., Washington, D.C. by the above date. Where petitions are filed during the last ten (10) days of the notice period, it is requested that the petitioner or representative for the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at (800) 325-6000 (in Missouri (800) 324-6700). The Western Union operator should be given Datagram Identification Number 3737 and the following message addressed to Robert W. Reid: (petitioner's name and telephone number); (date petition was mailed); (Iowa State); and (publication date and page number of this Federal Register notice). A copy of the petition should also be sent to the Executive

Legal Director, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, and to Iowa State University, Nuclear Engineering Department, 261 Sweeney Hall, Ames, Iowa 50011.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the Atomic Safety and Licensing Board designated to rule on the petition and/or request, that the petitioner has made a substantial showing of good cause for the granting of a late petition and/or request. That determination will be based upon a balancing of the factors specified in 10 CFR 2.714(a)(i)-(v) and 2.714(d).

For further details with respect to this action, see the application for renewal dated September 5, 1979, as may be supplemented by future submittals, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C.

Dated at Bethesda, Md., this 18 day of October, 1979.

For the Nuclear Regulatory Commission,  
Peter B. Erickson,  
Acting Chief, Operating Reactors Branch No. 4, Division of Operating Reactors.

[FR Doc. 79-34101 Filed 11-2-79; 8:45 am]  
BILLING CODE 7590-01-M

[Docket No. 50-263]

### Northern States Power Co. (Monticello Nuclear Generating Plant, Unit 1); Assignment of Atomic Safety and Licensing Appeal Board

Notice is hereby given that, in accordance with the authority in 10 CFR 2.787(a), the Chairman of the Atomic Safety and Licensing Appeal Panel has assigned the following panel members to serve as the Atomic Safety and Licensing Appeal Board for the operating license proceeding.

Alan S. Rosenthal, Chairman  
Dr. John H. Buck  
Michael C. Farrar

Dated: October 29, 1979.

C. Jean Bishop,  
Secretary to the Appeal Board.

[FR Doc. 79-34103 Filed 11-2-79; 8:45 am]  
BILLING CODE 7590-01-M

[Docket No. 50-57]

### State University of New York; Proposed Renewal of Facility License

The United States Nuclear Regulatory Commission (the Commission) is

considering renewal of facility License No. R-77, issued to the State University of New York (the licensee), for operation of the Pulsar Research Reactor located on the licensee's campus in Buffalo, New York.

The renewal would extend the expiration date of Facility License No. R-77 to January 1, 2000, in accordance with the licensee's timely application for renewal dated June 14, 1979.

Prior to renewal of the license, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

By December 5, 1979, the licensee may file a request for a hearing with respect to renewal of the subject facility license and any person whose interest may be affected by this proceeding and who wishes to participate as a party in the proceeding must file a written petition for leave to intervene. Requests for a hearing and petitions for leave to intervene shall be filed in accordance with the Commission's "Rules of Practice for Domestic Licensing Proceedings" in 10 CFR Part 2. If a request for a hearing or petition for leave to intervene is filed by the above date, the Commission or an Atomic Safety and Licensing Board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel, will rule on the request and/or petition and the Secretary or the designated Atomic Safety and Licensing Board will issue a notice of hearing or an appropriate order.

As required by 10 CFR 2.714, a petition for leave to intervene shall set forth with particularity the interest of the petitioner in the proceeding, and how that interest may be affected by the results of the proceeding. The petition should specifically explain the reasons why intervention should be permitted with particular reference to the following factors: (1) The nature of the petitioner's right under the Act to be made a party to the proceeding; (2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and (3) the possible effect of any order which may be entered in the proceeding on the petitioner's interest. The petition should also identify the specific aspect(s) of the subject matter of the proceeding as to which petitioner wishes to intervene. Any person who has filed a petition for leave to intervene or who has been admitted as a party may amend the petition without requesting leave of the Board up to fifteen (15) days prior to the first prehearing conference scheduled in the proceeding but such an amended

petition must satisfy the specificity requirements described above.

Not later than fifteen (15) days prior to the first prehearing conference scheduled in the proceeding, a petitioner shall file a supplement to the petition to intervene which must include a list of the contentions which are sought to be litigated in the matter, and the bases for each contention set forth with reasonable specificity. Contentions shall be limited to matters within the scope of the renewal action under consideration. A petitioner who fails to file such supplement which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

A request for a hearing or a petition for leave to intervene shall be filed with the Secretary of the Commission, United States Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Section, or may be delivered to the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. by the above date. Where petitions are filed during the last ten (10) days of the notice period, it is requested that the petitioner or representative for the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at (800) 325-6000 (in Missouri (800) 324-6700). The Western Union operator should be given Datagram Identification Number 3737 and the following message addressed to Robert W. Reid: (petitioner's name and telephone number); (date petition was mailed); (State University of New York); and (publication date and page number of this Federal Register notice). A copy of the petition should also be sent to the Executive Legal Director, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the Atomic Safety and Licensing Board designated to rule on the petition and/or request, that the petitioner has made a substantial showing of good cause for the granting of a late petition and/or request. That determination will be based upon a balancing of the factors

specified in 10 CFR 2.714(a)(i)-(v) and 2.714(d).

For further details with respect to this action, see the application for renewal dated June 14, 1979, as will be supplemented by future submittals, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C.

Dated at Bethesda Md. this 18th day of October, 1979.

For the Nuclear Regulatory Commission.  
Peter B. Erickson,  
*Acting Chief, Operating Reactors Branch 4,  
Division of Operating Reactors.*

[FR Doc. 79-34100 Filed 11-2-79; 8:45 am]

BILLING CODE 7590-01-M

### Study of Nuclear Power Plant Construction During Adjudication; Meetings

The next meeting of the Nuclear Regulatory Commission's Advisory Committee on nuclear power plant construction during adjudication, will be held at 9:00 a.m. Friday, November 8, 1979, in Room 415, East West Towers, 4350 East West Highway, Bethesda, Maryland. This meeting may be continued for more than one day, but each day's session will begin at the same time and place. At this meeting the group will continue drafting its final report to the Commission.

Members of the public are invited to attend the group's meetings and there will be a limited amount of time available during each meeting for members of the public to make oral statements to the study group. Written comments, addressed to the Secretary of the Commission, United States Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Service Branch, will be accepted for one week after each meeting. The Chairman of the study group is empowered to conduct the meeting in a manner that, in his judgment, will facilitate the group's work, including, if necessary, continuing or rescheduling meetings to another day.

A file of documents relevant to the group's work including a complete transcript of each meeting, memoranda exchanged between group members, public comments and other documents, is available for inspection and copying at the Commission's Public Document Room at 1717 H Street, NW., Washington, DC, 20555. The Secretary of the NRC maintains a mailing list for persons interested in receiving notices of the group's meetings and actions. Anyone wishing to be on that list should write to: Secretary of the Commission, Nuclear Regulatory Commission,



Washington, DC, 20555, Attention: Docketing and Service Branch.

For further information on the study group's mission, please call Stephen S. Ostrach, Office of the General Counsel, Nuclear Regulatory Commission, 202/634-3224.

Dated at Washington, DC, this 30th day of October 1979.

Gary Milhollin,  
Chairman.

[FR Doc. 79-34102 Filed 11-2-79; 8:45 am]  
BILLING CODE 7590-01-M

[Docket No. 50-271]

### Vermont Yankee Nuclear Power Corp.; Issuance of Amendment to Facility Operating License

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 55 to Facility Operating License No. DPR-28, issued to Vermont Yankee Nuclear Power Corporation which revised Technical Specifications for operation of the Vermont Yankee Nuclear Power Station (the facility) located near Vernon, Vermont. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications to incorporate the limiting conditions for operation associated with cycle 7 operation, and the surveillance requirements associated with the control rod hydraulic return line isolation valves.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of the amendment will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated August 21, 1979, as supplemented October 5, 1979 and October 5, 1979, (2) Amendment No. 55 to License No. DPR-28, and (3) the Commission's related Safety Evaluation.

All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. and at the Brooks Memorial Library, 224 Main Street, Brattleboro, Vermont.

A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Md., this 26th day of October 1979.

For the Nuclear Regulatory Commission.  
Thomas A. Ippolito,  
Chief, Operating Reactors Branch #3,  
Division of Operating Reactors.

[FR Doc. 79-34104 Filed 11-2-79; 8:45 am]  
BILLING CODE 7590-01-M

## DEPARTMENT OF TRANSPORTATION

### Federal Railroad Administration

[Docket No. RFA 511-79-2]

#### Section 511 of the Railroad Revitalization and Regulatory Reform Act of 1976; Receipt of Application

*Project.* Notice is hereby given that Richard B. Ogilvie, Trustee of the Property of Chicago, Milwaukee, St. Paul and Pacific Railroad Company ("Applicant") having its principle business address at 516 West Jackson Boulevard, Chicago, Illinois 60606, has filed an application with the Federal Railroad Administration ("FRA") under Section 511 of the Railroad Revitalization and Regulatory Reform Act of 1976, 45 U.S.C. 831, to secure a commitment by the United States to guarantee obligations and other evidence of indebtedness in the principle amount of \$32,348,000.

Project A consists of rehabilitation of the applicants major car rebuilding facility, Car Shop (Building CD-50), located in Milwaukee, Wisconsin. This rehabilitation includes renewing the existing built-up roofing, insulating of the roof, insulating the side walls, walls, upgrading and repairing the present steam heating system as well as refurbishing the existing system. The shops are presently being operated without heat due to the shortage of fuel and the inability to heat the building with available fuel supplies due to its condition. The shop is currently operating under a variance from the Wisconsin Department of Industry, Labor and Human Relations Administrative Code which requires that the shop be heated to a mean temperature of 60 degrees. The total cost

for this project is estimated to be \$1,532,000 plus there is a contingency item of \$73,850 for a project total of \$1,605,850.

Project B consists of the repair and overhaul of 87 diesel electric locomotives. The work will be performed at the applicants shops in Milwaukee, Wisconsin. The project consists of 7 elements of work. Element I consists of the overhaul and ballasting of 11 EMD Model SD40-2 locomotives at a cost of \$2,152,955. Element II consists of the overhaul and electrical rewiring of 16 EMD Model GP40 locomotives at a cost of \$3,649,407. Element III consists of the overhaul of 16 EMD Model GP38-2 locomotives at a cost of \$2,051,359. Element IV consists of the overhaul of 18 EMD modified GP20 locomotives at a cost of \$2,190,426. Element V consists of the overhaul of 21 EMD modified SD 10 locomotives. Element VI consists of overhaul of 5 EMD Model SDL39 locomotives. Element VII is an 8% contingency item for the above elements. The total estimated cost for this project with contingencies is \$14,854,328.

Project C consists of the restoration and rebuilding of 1202 freight cars and 43 road cabooses. A total of 450 of the cars proposed to be worked in this project are presently stored bad order. There are 18 cabooses that are also stored bad order at the present time. The project is divided into 9 separate elements. Element I consists of the purchase of necessary equipment to accomplish the work. Total cost for the element is \$122,000. Element II consists of the repair of 43 road cabooses at a cost of \$534,843. Element III consists of the repair of 81 AAR type R206 insulated box cars and 67 AAR type A230 equipped box cars at a cost of \$1,084,819. All of these cars in this element are presently bad order. Element IV consists of the repair of 48 auto parts box cars at a cost of \$416,173. All of the cars in this element are presently unserviceable. Element V consists of the repair of 145 AAR type B208-B209 plain 50 foot box cars at a cost of \$1,068,410. All of the cars in this element are presently bad order. Element VI consists of the repair of 21 AAR type E330-E340 gondolas at a cost of \$130,878. All 21 of these are presently bad order. Element VII consists of the rebuilding of 540 AAR type B209 50 foot plain box cars at a cost of \$8,647,836. There are 49 of these cars that are presently stored bad order. Element VIII consists of the repair of 300 AAR type

B209 50 foot plain box cars at a cost of \$2,665,983. There are presently 39 of these cars stored bad order. Element IX is an 8% contingency item for the above elements. The total estimated cost for Project C is \$15,855,417.

#### *Justification for the Projects.*

Applicant represents the following justification for projects A, B, and C. The performance of Project A will allow the applicant to continue operating the shop in compliance with Wisconsin state codes and prevent the storing of medium and heavy bad order cars. The performance of the project will also make the shop more economical to heat and conserve large amounts of energy.

The performance of the work in Project B will provide the applicant with reliable locomotives to operate its railroad and provide the public with reliable and competitive freight services. The likelihood of engine failures will be greatly reduced.

The performance of the work in Project C will provide the applicant with 450 freight cars that are now out of service. The remaining freight cars will be restored to like new condition. The total number of cars proposed to be worked in the project represent over 21,000 carloads annually. Rebuilding and repairing the 1,202 will also enhance the car hire earning of the equipment and help reduce the applicants car hire deficit. The public will benefit by having more cars and better cars to load.

**Comments:** Interested persons may submit written comments on the application to the Associate Administrator for Federal Assistance, Federal Railroad Administration, 400 Seventh Street, S.W., Washington, D.C. 20590, not later than December 5, 1979. Such submission shall indicate the docket number shown on this notice and state whether the commenter supports or opposes the application and the reasons therefor.

If the commenter wishes acknowledgment of the Federal Railroad Administration's receipt of the comments, the commenter may include a self-addressed stamped postcard with the comments, which will be returned upon the Federal Railroad Administration's receipt of the comments. The comments will be taken into consideration by the Federal Railroad Administration in evaluating the application. However, no other formal acknowledgment of the comments will be provided.

The FRA has not approved or disapproved this application, nor has it

passed upon the accuracy or adequacy of the information contained therein.

William E. Loftus,

*Acting Associate Administrator for Federal Assistance, Federal Railroad Administration.*

[FR Doc. 79-33909 Filed 11-2-79; 8:45 Am]

BILLING CODE 4910-06-M

## DEPARTMENT OF THE TREASURY

### Internal Revenue Service

[Delegation Order No. 99 (Rev. 3)]

#### Delegation of Authority

**AGENCY:** Internal Revenue Service, Treasury.

**ACTION:** Revocation of Delegation of Authority.

**SUMMARY:** The Commission's Order No. 99 (Rev. 3), which delegated authority of CFR 1.6091-4 to Service Center Directors to receive Forms 1040 and 1040A is revoked. The functional statement in IRM 1117.22 is sufficient now to grant authority to the Directors of the Service Centers to receive returns filed under such exceptional cases as described in 26 CFR 1.6091-4(2). The text of the Delegation Order appears below.

**EFFECTIVE DATE:** November 1, 1979.

**FOR FURTHER INFORMATION CONTACT:** Margaret Ann Linn, 1111 Constitution Avenue, NW., Room 7554, Washington, D.C. 20224. Telephone (202) 566-4804 (not toll-free).

This document does not meet the criteria for significant regulations set forth in paragraph 8 of the Treasury Directive appearing in the Federal Register for Wednesday, November 8, 1978.

Martha M. Seeman,  
*Acting Director, Internal Management Documents Division.*

[Revocation Notice Order No. 99 (Rev. 3)]

#### Delegation Order

##### *Filing of Returns With Internal Revenue Service Centers*

1. Delegation Order No. 99 (Rev. 3), pursuant to authority granted to the Commissioner of Internal Revenue by 26 CFR 1.6091-4, delegates the authority (for all purposes except venue) to the Directors of the Internal Revenue Service Centers to receive Forms 1040 and 1040A.

2. The functional statement in IRM 1117.22 is sufficient now to grant authority to the Directors of the Service Centers to receive returns filed under such exceptional cases as described in 26 CFR 1.6091-4(2).

3. Delegation Order No. 99 (Rev. 3), dated April 4, 1968, is obsolete.

Date of issue and effective date: November 1, 1979.

Jerome Kurtz,  
*Commissioner.*

[FR Doc. 79-34096 Filed 11-2-79; 8:45 Am]

BILLING CODE 4830-01-M

## Office of the Secretary

### Certain Fresh Winter Vegetables From Mexico; Antidumping Proceeding Notice and Tentative Determination of Sales at Not Less Than Fair Value

**AGENCY:** U.S. Treasury Department.

**ACTION:** Initiation of Antidumping Investigation and Tentative Determination of Sales at Not Less than Fair Value.

**SUMMARY:** This notice is to advise the public that an antidumping petition in satisfactory form has been received and an antidumping investigation has been initiated to determine whether certain fresh winter vegetables from Mexico are being, or are likely to be, sold at less than fair value within the meaning of the Antidumping Act, 1921. Sales at less than fair value generally occur when the price of merchandise sold for exportation to the United States is less than the price of such or similar merchandise sold in the home market or to third countries or, in the absence of sufficient sales, the constructed value of such merchandise. A tentative determination that certain fresh winter vegetables from Mexico are not being sold at less than fair value within the meaning of the Act is being issued simultaneously. Interested persons are invited to comment on this action.

**EFFECTIVE DATE:** November 5, 1979.

**FOR FURTHER INFORMATION CONTACT:** Peter D. Ehrenhaft, Deputy Assistant Secretary and Special Counsel (Tariff Affairs), U.S. Treasury Department, Washington, D.C. 20220, (202-566-2806).

**SUPPLEMENTARY INFORMATION:** On October 19, 1979, a petition in proper form was received pursuant to §§ 153.26 and 153.27, Customs Regulations (19 CFR 153.26, 153.27), from counsel on behalf of the Southwest Florida Winter Vegetable Growers Association, the Palm Beach-Broward Farmers Committee for Legislative Action, Inc., and the South Florida Tomato and Vegetable Growers, Inc., alleging that certain fresh winter vegetables from Mexico are being, or are likely to be, sold at less than fair value within the meaning of the Antidumping Act, 1921, as amended (19 U.S.C. 160 *et seq.*) (referred to in this notice as the "Act").

Pursuant to the understandings expressed in an exchange of letters between counsel for the petitioners and the General Counsel of the Treasury in connection with the withdrawal by the petitioners of their previously filed antidumping petition, published in the Federal Register of July 25, 1979, 44 FR 43567, this Tentative Determination is being made promptly upon the refiling of the original petition and on the basis of the materials in the files obtained in the course of the prior investigation which was terminated in July.<sup>1</sup>

For purposes of this Notice, the term "certain fresh winter vegetables" means fresh cucumbers, eggplant, peppers, squash, and tomatoes (except cherry tomatoes), the product of Mexico, provided for in items 135.90 through 135.92, 136.20 through 136.22, 137.10, 137.50, and 137.60 through 137.63, respectively, of the Tariff Schedules of the United States, and meeting the United States Department of Agriculture minimum standards for grades as set out in 7 CFR 51.2220 through 51.2239, 51.2190 through 51.2207, 51.3270 through 51.3286, 51.4030 through 51.4062, and 51.1855 through 51.1877, respectively. This investigation concerns only fresh vegetables shipped during the winter vegetable season, meaning entries of the subject merchandise made during the period November 1 in any year to the last day of the following April inclusive. The petitioners apparently sell such or similar merchandise during this period. Respondents suggested that a longer period, covering sales in May and June, should be investigated. However, the request for an expanded period was not made until nearly five months after the initial Notice of Initiation was published in October 1978. This submission was too late to permit a change in the initial investigatory period, and data for May and June sales was, therefore, not considered in this Determination.

#### Tentative Determination of No Sales at Less Than Fair Value

On the basis of the information developed in the Customs investigation and for the reasons noted below, pursuant to section 201(b)(1) of the Act (19 U.S.C. 160(b)(1)), I hereby determine that there are inadequate grounds to believe or suspect that the purchase price of the fresh winter vegetables from Mexico that are the subject of this

investigation is less than the fair value, and thereby the foreign market value, of such or similar merchandise.

#### Statement of Reasons on Which This Determination Is Based

a. *Scope of Investigation.* This investigation covers the vegetables enumerated above imported into the United States between the first of November of one year and the last day of April of the following year. The period investigated in this case was the 1977-78 winter crop, entered between November 1, 1977 and April 30, 1978.

Customs analyzed data from 31 individual growers, who account for approximately 15 to 20 percent of the imports of the subject merchandise from Mexico. They were selected by Customs to include the largest individual producers of the various vegetables shipped to the United States, some of them producing each type and some only certain types of the five vegetables considered. Hundreds of additional growers also produce the vegetables at issue. However, as the product is fungible both from the point of view of production and sale, the sample selected is considered adequately representative of the entire "class or kind" of merchandise. There is no evidence an enlargement of the sample would have altered the results of the investigation.

b. *Basis of Comparison.* For the purposes of considering whether the merchandise in question is being, or is likely to be, sold at less than fair value within the meaning of the Act, the proper basis for comparison appears to be between the purchase price and third country price of such merchandise. Purchase price, as defined in section 203 of the Act (19 U.S.C. 162), was used since all export sales to the United States were made to unrelated U.S. customers by consignees of the Mexican growers. The consignees were located in Nogales, Arizona, and sold the goods on commission. Home market prices could not be used to establish fair value since virtually none of the vegetables that are the subject of the investigation, in the grades and qualities shipped to the United States, were sold in the home market. Third country prices, as defined in § 153.3, Customs Regulations (19 CFR 153.3), were used since such or similar merchandise was sold for exportation to Canada. The sales to Canada represented approximately 10 percent of sales to the United States and, therefore, were within the established standards of sufficiency to provide an adequate basis for comparison.<sup>2</sup>

<sup>2</sup> See e.g., *Cumceno from the Netherlands*, 43 FR 53730 (1978) (third country sales of 9% of U.S. sales

In accordance with § 153.31(b), Customs Regulations (19 CFR 153.31(b)), pricing information was obtained concerning United States and Canadian sales during the period November 1, 1977, through April 30, 1978. In addition, data was obtained concerning the cost of producing the 1977-78 crops of the five vegetables under consideration.

c. *Inclusion of Perishable Merchandise under the Antidumping Act.* Early in the initial investigation, a question was raised whether perishable agricultural commodities are within the scope of the Antidumping Act. A comprehensive review of the legislative history of the Act makes it clear that agricultural commodities are subject to the provisions of the Act. The first Antidumping provisions in U.S. law appeared in the Underwood Tariff Bill of 1913, H.R. 3321, 63d Cong., 1st Sess. The dumping provision was passed by the House, but deleted from the bill reported by the Senate Finance Committee. The Underwood Bill was, in the main, an emergency tariff bill directed towards various agricultural products. Nothing in the reports or the debates evidences any perception that the dumping provision was not to be applied to agricultural products. In fact, agricultural products were mentioned, though not emphasized, by several Senators and Representatives in their remarks. See, e.g., 50 Cong. Rec. 1236 (1913) [remarks of Representative Switzer].

The provision that became the current Antidumping Act was part of the Emergency Tariff Act of 1921, H.R. 2435, 67th Cong., 1st Sess. As with the 1913 legislation, Congressional debate focused on the tariff aspects of the bill, all of which were, in turn, related to agricultural products. Most of the rather limited debate on the dumping provision concerned whether it was *limited* to agricultural products, and assurances were provided that the provision was not so circumscribed but applied to all goods, including manufactured goods. (See, e.g., 61 Cong. Rec. 327-28 (Remarks of Rep. Green); 61 Cong. Rec. 1020-21 (Colloquy of Sens. McCumber & Harrison)). Thus there is no question that agricultural products were intended to be and have been within the ambit of the Antidumping Act since its first enactment.

A question was then raised whether perishable commodities have ever been investigated under the Antidumping Act. The Act has been applied to agricultural products in a number of instances, and

sufficient): *Certain I-Beans from Belgium*, 44 FR 54579 (1979) (home country sales of 6 percent of U.S. sales sufficient).

<sup>1</sup> Respondents submitted additional information following the refiling of the petition which tended to corroborate their earlier submissions. However, this Tentative Determination has not been based upon this additional information, and is based upon studies prepared by the Treasury Department using the data submitted in connection with the proceedings terminated in July.

to perishable agricultural commodities in particular.

In two investigations involving perishable agricultural products concluded within the past decade the Treasury Department found dumping margins; in a third no sales at less than fair value were found.

In the case of *Concord Grapes from Canada*, 34 FR 7460 (1969), the Treasury Department found sales at less than fair value by comparing long term supply contract prices in Canada with cash "spot" sales to the United States. In unanimously determining that such sales did not injure the domestic industry, the Tariff Commission noted that the spot market existed in part for the sale of second quality merchandise. TC Pub. 292 at 5 (1969). These facts cast doubt on the propriety of the methods used by Treasury to compare the relevant prices in the two markets. In the case of *Chicken Eggs in the Shell from Mexico*, 36 FR 5387 (1971), the Department again found sales at less than fair value ("LTFV") by comparing cash spot sales in Mexico with future contracts traded on the Chicago Mercantile Exchange. Again the Tariff Commission unanimously determined such sales did not cause or threaten injury to the domestic industry, but noted that the LTFV determination was due to the fact that rising home market prices in Mexico after the futures contracts had been concluded in the U.S. created only "technical" dumping. T.C. Pub. 400, at 4 (1971). Treasury's comparison in that case of spot sales with long term contract prices was, thus, similarly questionable. In *Chicken Eggs in the Shell from Canada*, 40 FR 16687 (1975), comparisons were made on identical types of sales in the two markets from identical shipment points, but no sales at less than fair value were found.

d. *Purchase Price*. For the purposes of this tentative determination, purchase prices for each type of vegetable have been calculated on the basis of sales prices to unrelated parties in the United States during the period of investigation. Sales were actually concluded by distributors in Nogales, Arizona, most of whom were unrelated to the growers, and all of whom accepted the merchandise on consignment, selling it through negotiated transactions with buyers. On the basis of the investigation, it appears that actual sale prices were determined on a daily—even hourly—basis in the light of conditions of supply and demand. Occasionally, during the periods of greatest supply (January, February and March) weather conditions in the northern markets temporarily and

significantly impeded the ability to deliver the products available for sale. Because of the perishability of the products in question, some of which had commercial value for less than 2 weeks following their arrival in Nogales, these factors tended to depress prices substantially for such merchandise in the remaining markets.

Data concerning sales prices were obtained from each of 31 separate growers. However, if each grower of a single type of vegetable is counted as one, a total of 63 growers' sales were examined. Due to the voluminous sales data involved, the growers were requested to provide information only with respect to sales on one day of each week during the period of investigation (although the day was different and randomly selected for each week). Adjustments were then made for brokers' and consignees' commissions, U.S. Customs duties and charges, U.S. Department of Agriculture inspection fees, United States and Mexican customs house brokerage, freight to Nogales, Mexican export duty and charges, and growers' association fees and charges, as applicable.

e. *Third Country Price*. For the purposes of this tentative determination, the third country price was calculated on the basis of the selling price to unrelated purchasers in Canada. The same deductions as were made to calculate purchase price were made to establish the third country price with the exception of any deduction for U.S. Customs duties and charges since these were, of course, not incurred on Canadian sales. There are no Canadian customs duties or charges.

f. *Differences in Merchandise Sold in the Two Markets*. In making fair value comparisons, sales by the same grower of the same size of the relevant vegetable, on the same day, to buyers at distances approximately equivalent from the point of shipment in Nogales, Arizona, have been used. With respect to tomatoes, there have been segregated for purposes of comparison sales made to buyers in three zones of shipment from Arizona: Sales to the Northeast United States were compared to sales in Ontario and Quebec; sales to the Midwest United States were compared with sales in the central Canadian provinces; and sales to the Northwest United States were compared with sales to British Columbia. Comparison between sales to Canada and sales of any similar quantities anywhere in the United States is not appropriate because the rapid perishability of vine-ripened tomatoes, as shipped by the Mexican growers, requires the sales of the least

ripe product to the most distant destination. The longer shelf life of such products makes them commercially more valuable and it was, therefore, considered inappropriate to compare, for example, sales to Quebec with sales of tomatoes to a destination in the U.S. nearer to Nogales, such as Los Angeles, California, to which the more ripe (and less valuable) produce could be shipped.

Moreover, from the available evidence it would appear that shipments during the winter selling season to destinations in the Northeast and Midwest markets of the United States and in the Canadian market were occasionally interrupted by severe weather conditions, as a result of which the merchandise did not arrive on time and was spoiled. In such circumstances, the Mexican growers typically grant rebates on future sales to compensate buyers for the spoilage factor. When it has been possible to identify such credits as applied to individual sales transactions, the later reduced sale prices have been disregarded as aberrational to the determination of whether sales have been at "less than fair value" within the meaning of the Act.

With respect to the other types of vegetables at issue, no claims of rapid deterioration similar to those made for tomatoes were presented. Therefore, comparisons were made of sales of those four types in Canada with sales to destinations anywhere in the northern half of the United States.

g. *Comparability of the Markets Compared*. Respondents have contended that the distributors selling Mexican fresh winter vegetables in the United States do not differentiate between Canada and the United States in their sales prices. A study was submitted purporting to show that during the period of investigation, prices of the imported merchandise in the United States were at all times approximately equal to the prices at which comparable merchandise was sold on the same day to Canadian buyers comparably distant from Nogales.<sup>3</sup> With respect to tomatoes, it was claimed that prices in the three regions in the United States identified above were approximately equal to those in equivalent regions in Canada. Minor differences existed in both markets on given days, but such differences did not produce consistent patterns of lower prices in one market rather than the other. Rather, the study

<sup>3</sup> Comparably distant did not include equally distant southern U.S. destinations not affected by the weather conditions affecting northern destinations.

claimed to show that there was an effective identity of prices in the markets being compared based upon traditional regression analysis of the available data.

The term "fair value" is undefined by the Antidumping Act and the Secretary may exercise discretion in selecting procedures appropriate to making determinations of sales at less than fair value. Particularly when prices in the markets of comparison fluctuate continuously and substantially during the period of investigation, practices generally used in cases concerning relatively stable situations may be found inappropriate and more suitable methods may be used. Section 153.16, Customs Regulations (19 CFR 153.16). When evidence exists that in the markets of comparison, price changes in one are rapidly followed in the other, and that such changes are the result of the conditions of supply and demand affecting both markets simultaneously rather than the ability of individual sellers to establish prices in either, it is appropriate to consider whether such sales transactions reflect a unitary, competitive market rather than the price discrimination at which the Antidumping Act is directed. In other words, if the numerous growers of Mexican vegetables sell their product to buyers in both Canada and the United States similarly distant from the point of shipment at the best prices they can obtain and prices in one market are quickly followed in the other, no discrimination can be said to exist.

The existence of this condition can be tested by isolating pairs of prices in the two markets that represent sales of essentially identical produce on the same day and fitting an ordinary least squares regression line through the price pairs. If there is no statistically significant deviation from such unitary pricing, a graphic display of the results would show the price sets falling on or near a straight line emanating from the origin at a 45 degree angle, having a slope of 1. Respondents submitted such a test and their statistical results showed no price discrimination between the Canadian market and those parts of the U.S. markets examined.

The Customs Service made an independent study, based on a similar methodology, using solely data which it had verified.

Attached at Appendix A is a table reflecting the results of that analysis and indicating the sizes of the samples of the total sales considered for determining whether sales of the affected merchandise were made at less than fair value. Matched pair analyses were made with respect to sales of tomatoes

of specified sizes by individual growers in the Northeast, Midwest and Northwest United States with corresponding regions in Canada. With respect to the other four types of vegetables, as no information was provided indicating that their perishability required as narrow a delineation of sales areas, matched pairs were considered on the basis of individual grower's sales of comparably sized produce, on single days, to buyers anywhere in Canada and anywhere in the northern half of the United States. In establishing such match pairs, both for tomatoes and for other vegetables, no transactions of the growers examined were eliminated except occasional sales reflecting a rebate for spoilage on an earlier transaction. Moreover, some of the sales transactions to United States buyers on the days on which a matched pair sale occurred in Canada were compared to other United States sales in appropriate geographical areas by other growers on the same day. This analysis also tentatively corroborates the results of the sampling technique used, since no statistically significant deviation from the prices of the U.S. sales used in the primary tests could be identified.

In considering the information summarized in Appendix A, it is clear that the samples of total sales in the markets being compared are smaller than the samples usually considered in fair value determinations. Nevertheless, in this case, the sample used was based on all matched pairs that could be identified from the available data and thus it appears to provide an adequate basis for a determination whether sales of the affected merchandise more generally were being made at less than "fair value" within the meaning of the Act. In amending the Antidumping Act, by passage of the Trade Agreements Act of 1979, Congress specifically authorized the use of recognized sampling techniques in determining foreign market value and fair value. Section 773(f), Tariff Act of 1930, as amended, 19 U.S.C. section 1677 b (f) (1979). Although this provision is not yet effective, the Congress made clear that its amendments to the Antidumping Act were not intended to make substantive changes except in a few clearly identified areas. H. Rep. 96-317, 96th Cong., 1st Sess. at 59 (1979); S. Rep. 96-249, 96th Cong., 1st Sess. at 61 (1979). The enactment of Section 773(f) reflects congressional direction that sampling procedures be used to deal fairly with voluminous and complex data. Moreover, in light of the complexity of this case it seems unlikely that a Final Determination will be made before

January 1, 1980, at which time Section 773(f) will presumably be effective. Accordingly, the recognized sampling technique and regression analysis used by the Customs Service here are considered appropriate for determining whether the "matched pairs" of sales considered reflect sales of the entire class or kind of merchandise at less than fair value.

In tentatively accepting the results of the matched pair analysis as reflecting no likelihood of sales at less than fair value, all sales in Canada on days on which the same grower sold the same merchandise to the relevant region in the U.S. were considered. In doing so, the Customs Service investigated whether certain of the Canadian sale prices were at prices below cost and should be disregarded pursuant to Section 205(b) of the Act, 19 U.S.C. section 164(b). Information concerning the cost of production was obtained from the growers who provided information concerning their sales. Based on that information, it appeared that certain sales by the affected growers were made below the cost so computed. However, for the reasons stated below, such sales have not been disregarded: The Senate Finance Committee in its Report on Section 205(b) of the Trade Reform Act of 1974, stated:

"[W]henver the Secretary has reasonable grounds to believe or suspect that sales below cost are being made, he [will] investigate to determine whether such sales are in fact below cost . . . [S]uch sales would be disregarded in determining foreign market value if they (1) have been made over an extended period of time and in substantial quantities; and (2) are determined by the Secretary not to be at prices which permit recovery of all costs within a reasonable period of time and in the normal course of trade. These standards would not require the disregarding of below-cost sales in every instance, for under normal business practice in both foreign countries and the United States, it is frequently necessary to sell obsolete . . . merchandise at less than cost." S. Rep. 93-1293, 93d Cong., 2d Sess., at 173 (1974).

It is reasonable to equate perishable merchandise such as the vegetables at issue with "obsolete" merchandise, to which the Committee referred, for if not sold quickly at whatever price, its perishability renders it commercially valueless.

Additionally, in responding to a suggestion to the effect that *all* sales below cost should be disregarded which was made to the House Ways and Means Committee in 1973 during the pendency of the Trade Act before it, the Treasury Department submitted a memorandum, dated May 30, 1973,



contending that not all such sales should be disregarded saying:

"For example, manufacturers may typically sell damaged or "second" merchandise, obsolete or year-end models, or highly perishable merchandise at prices less than their fully allocated cost of production for limited periods of time."

In the instant case, it appears that sale of the highly perishable vegetables in question are occasionally made at less than the fully allocated costs of individual growers. However, such sales are not made over "an extended period of time" and are, at most, sporadic during the growing season and reflect the natural conditions of supply and demand existing in the market. Moreover, to the extent that the growers of perishable agricultural produce recover all of their costs within a single growing season notwithstanding the fact that occasional sales are made at less than fully allocated cost, there would seem to be no legal requirement to disregard the occasional sales made below cost in determining whether sales have been made at less than "fair value" within the meaning of the Act. In the instant case, moreover, it appears that sales at less than the cost of production accounted for less than 15 percent by value of the transactions considered in the matched pair analysis made. Therefore, even if those transactions were eliminated from the matched pair analysis the results of that sampling technique would not have been significantly altered.

#### h. Results of Fair Value Comparisons.

Using the above criteria, purchase price was found to be not less than the third country price of the merchandise under investigation.

In accordance with § 153.40, Customs Regulations (19 CFR 153.40), interested persons may present written views or arguments or request in writing that they be afforded an opportunity to present oral views. Any request to present oral views should be submitted to the Commissioner of Customs, 1301 Constitution Avenue, NW., Washington, D.C. 20229, in time to be received by his office no later than November 15, 1979. Such requests must be accompanied by a statement outlining the issues to be discussed. These issues may be discussed in greater detail in a written brief.

All written views and arguments should likewise be submitted to the Commissioner of Customs in 10 copies in time to be received in his office no later than December 5, 1979. All persons submitting views or arguments should avoid repetitious and merely cumulative material. Counsel for the petitioners and the respondents are also requested to serve all written submissions on Counsel including non-confidential summaries or approximated presentations of all confidential information. This notice is published pursuant to §§ 153.30 and 153.34(a), Customs Regulations (19 CFR 153.30, 153.34(a)).

Robert H. Mundheim,  
General Counsel of the Treasury.  
October, 29, 1979.

#### Appendix A

Product	Number of matched pair transactions examined	Value of U.S. sales in matched pair	Value of Canadian sales in matched pair	Total value of U.S. sales in data base	Total value of Canadian sales in data base	Percentage of total sales considered in matched pair analysis		Deviation from "1" in graphic display of matched pairs
						U.S.	Canada	
Tomatoes:								
Northeast.....	66	111,390	132,381	450,443	760,124	24.8	17.4	.98 (.04)
Midwest.....	32	41,507	72,479	266,557	532,433	15.6	13.6	.94 (.07)
Northwest.....	17	31,981	26,586	286,831	304,386	11.1	8.7	.79 (.11)
Cucumbers*.....	71	71,855	41,819	786,159	516,283	9.1	8.0	.67 (.12)
Squash*.....	50	11,852	10,968	129,904	129,645	9.1	8.5	.87 (.05)
Pepper*.....	45	45,657	41,493	425,349	423,873	10.7	9.8	.87 (.07)
Eggplant*.....	57	5,019	5,851	44,411	47,872	11.3	12.2	.82 (.07)

\*No correction for duties or conversion factors for quantities.

[FR Doc. 79-34132 Filed 11-2-79; 8:45 am]  
BILLING CODE 4810-22-M

#### Supplement to Department Circular; Public Debt Series—No. 25-79

October 31, 1979.

The Secretary announced on October

30, 1979, that the interest rate on the notes designated Series G-1983, described in Department Circular—Public Debt Series—No. 25-79, dated

October 25, 1979, will be 11½ percent. Interest on the notes will be payable at the rate of 11½ percent per annum.

Paul H. Taylor,  
Fiscal Assistant Secretary.

#### Supplementary Statement

The announcement set forth above does not meet the Department's criteria for significant regulations and, accordingly, may be published without compliance with the Departmental procedures applicable to such regulations.

[FR Doc. 79-34137 Filed 11-2-79; 8:45 am]  
BILLING CODE 4810-40-M

#### VETERANS ADMINISTRATION

##### Development of 5 Acres; Fort Gibson National Cemetery, Fort Gibson, Okla.; Finding of No Significant Impact

The Veterans Administration (VA) has assessed the potential environmental impacts that may occur as a result of the development of five (5) acres of land within the existing National Cemetery at Fort Gibson, Oklahoma.

The proposed project action will provide approximately 3,000-3,400 gravesites and will insure that sufficient gravesites are available for the continuation of interments. The development will be staged to provide sufficient time for turf and landscape planting to become established.

The expansion project will not involve construction of any buildings, but will include clearing, grading, construction of a road and curbs, drainage facilities, water distribution lines, and placement of a metal picket fence. In addition, soil additives, seeding and ornamental landscape planting will be included in the project. Total estimated project cost is approximately \$231,000.

Development of the proposed project will have impacts on the environment as they affect vegetation, open space, soil stability and minor aspects of air quality.

The mitigation of the project impacts on the environment include: implementation of erosion and sedimentation controls; onsite noise abatement measures; and air quality controls related to construction.

The Environmental Assessment has been performed in accordance with the requirements of the National Environmental Policy Act Regulations, §§ 1501.3 and 1508.9, Title 40, Code of Federal Regulations. A "Finding of No Significant Impact" has been reached

based on the information presented in this assessment.

The assessment is being placed for public examination at the Veterans Administration, Washington, D.C. Persons wishing to examine a copy of the document may do so at the following office: Mr. Willard Sitler, Director, Office of Environmental Affairs (004A), Room 1018, Veterans Administration, 810 Vermont Avenue, NW., Washington, D.C. 20420, (202-389-2526). Questions or requests for single copies of the Environmental Assessment may be addressed to the above office.

Dated: October 30, 1979.

By direction of the Administrator.

Maury S. Cralle, Jr.,

*Assistant Deputy Administrator for Financial Management and Construction.*

[FR Doc. 79-34125 Filed 11-2-79; 8:45 am]

BILLING CODE 8320-01-M

## INTERSTATE COMMERCE COMMISSION

### Permanent Authority Decision; Decision-Notice

#### Correction

In FR Doc. 79-27985, appearing at page 52393 in the issue for Friday, September 7, 1979, on page 52395, in the first column, in the paragraph "MC96992 (Sub-15F)" for Highway Pipeline Trucking Company, in the 16th line, "ME" should read "MI".

BILLING CODE 1505-01-M

### Motor Carrier Temporary Authority Applications

#### Correction

In FR Doc. 79-29793, published at page 55448, on Wednesday, September 26, 1979, make the following corrections:

1. On page 55460, in the first column, in the second full paragraph "MC 64832 (Sub-8TA)" for Magnolia Truck Line, Inc., in lines 15, 16, 20, and 27 "IA" should be corrected to read "LA";

2. On page 55465, in the first column, in the third full paragraph "MC 116763 (Sub-563TA)" for Carl Subler Trucking, Inc., in the sixteenth line "LA" should be corrected to read "IA".

BILLING CODE 1505-01-M

### Permanent Authority Decisions

#### Correction

In FR Doc. 79-27044 appearing at page 50948 in the issue of Thursday, August 30, 1979, on page 50970, in the second column, in the second full paragraph,

"MC 59583 (Sub-172F)", The Mason and Dixon Lines, Inc., in the tenth line, the word "irregular" should read "regular".

BILLING CODE 1505-01-M

#### [Docket No. AB-1 (Sub-No. 59)]

**Chicago & North Western Transportation Co. Abandonment Near Heron Lake and Lake Wilson, in Jackson, Nobles, and Murray Counties, Minn.; Findings**

Notice is hereby given pursuant to 49 U.S.C. 10903 that by a decision decided March 9, 1979, a finding, which is administratively final, was made by the Administrative Law Judge, stating that, the present and future public convenience and necessity permit abandonment by the Chicago and North Western Transportation Company of its line of railroad extending from milepost 0.0 near Heron Lake, MN, in a northwesterly direction to milepost 36.8 near Lake Wilson, MN, and 2.7 miles of side tracks adjacent thereto and owned by the railroad, all in Jackson, Nobles, and Murray Counties, MN, subject to the imposition of conditions (1) for the protection of railway employees, as finally developed in AB-36 (Sub-No. 2), Oregon Short Line R. Co.-Abandonment Goshen, 360 I.C.C. 91 (1979); and (2) that applicant shall keep intact all of the right-of-way underlying the track, including side tracks, bridges, and culverts, for a period of 180 days from the effective date of the certificate authorizing abandonment, to permit any state or local government agency or other interested party to negotiate the acquisition for public use of all or any portion of the right-of-way. A certificate of abandonment will be issued to the Chicago and North Western Transportation Company based on the above-described finding of abandonment, 30 days after the publication of this notice (December 5, 1979), unless on or before December 5, 1979, the Commission further finds that:

(1) A financially responsible person (including a government entity has offered financial assistance (in the form of a rail service continuation payment) to enable the rail service involved to be continued; and

(2) It is likely that such proffered assistance would:

(a) Cover the difference between the revenues which are attributable to such line of railroad and the avoidable cost of providing rail freight service on such line, together with a reasonable return on the value of such line, or

(b) Cover the acquisition cost of all or any portion of such line of railroad.

If the Commission so finds, the issuance of a certificate of abandonment will be postponed for such reasonable time, not to exceed 6 months, as is necessary to enable such person or entity to enter into a binding agreement, with the carrier seeking such abandonment, to provide such assistance or to purchase such line and to provide for the continued operation of rail services over such line. Upon notification to the Commission of the execution of such an assistance or acquisition and operating agreement, the Commission shall postpone the issuance of such a certificate for such period of time as such an agreement (including any extensions or modifications) is in effect. Information and procedures regarding the financial assistance for continued rail service or the acquisition of the involved rail line are contained in the Notice of the Commission entitled "Procedures for Pending Rail Abandonment Cases" published in the Federal Register on March 31, 1976, at 41 FR 13691, as amended by publication of May 10, 1978, at 43 FR 20072. All interested persons are advised to follow the instructions contained therein as well as the instructions contained in the above-referenced decision.

Agatha L. Mergenovich,

*Secretary.*

[FR Doc. 79-34119 Filed 11-2-79; 8:45 am]

BILLING CODE 7035-01-M

#### [Docket No. AB-7 (Sub-49)]

**Stanley E. G. Hillman, Trustee of the Property of Chicago, Milwaukee, St. Paul & Pacific Railroad Co., Abandonment, Debtor, Near Monroe to Mineral Point in Green, Lafayette, and Iowa Counties, Wis.; Findings**

Notice is hereby given pursuant to 49 U.S.C. 10903 that by a decision decided January 30, 1979, a finding which is administratively final, was made by the Administrative Law Judge, stating that, the present and future public convenience and necessity permit abandonment by Stanley E. G. Hillman, Trustee of the Property of the Chicago, Milwaukee, St. Paul and Pacific Railroad Company Abandonment, Debtor, of its line of railroad beginning at milepost 44.0 near Monroe and extending in a westerly and then northerly direction to the end of the line at milepost 90.7 near Mineral Point, a distance of 46.7 miles, in Green, Lafayette, and Iowa counties, WI, subject to the imposition of the labor conditions prescribed in AB-36 (Sub-No. 2), Oregon Short Line Railroad Co.—Abandonment Goshen, 360 I.C.C. 91 (1979); and further, that the applicant

shall keep intact all of the right-of-way underlying the track, including all of the bridges and culverts, for a period of 180 days from the effective date of the certificate authorizing abandonment, to permit any state or local government agency or other interested party to negotiate the acquisition for public use of all or any portion of the right-of-way. A certificate of abandonment will be issued to the Chicago, Milwaukee, St. Paul and Pacific railroad company based on the above-described finding of abandonment, 30 days after publication of this notice (December 5, 1979), unless on or before December 5, 1979 the Commission further finds that:

(1) A financially responsible person (including a government entity) has offered financial assistance (in the form of a rail service continuation payment) to enable the rail service involved to be continued; and

(2) It is likely that such proffered assistance would:

(a) Cover the difference between the revenues which are attributable to such line of railroad and the avoidable cost of providing rail freight service on such line, together with a reasonable return on the value of such line, or

(b) Cover the acquisition cost of all or any portion of such line of railroad.

If the Commission so finds, the issuance of a certificate of abandonment will be postponed for such reasonable time, not to exceed 6 months, as is necessary to enable such person or entity to enter into a binding agreement, with the carrier seeking such abandonment, to provide such assistance or to purchase such line and to provide for the continued operation of rail services over such line. Upon notification to the Commission of the execution of such an assistance or acquisition and operating agreement, the Commission shall postpone the issuance of such a certificate for such period of time as such an agreement (including any extensions or modifications) is in effect. Information and procedures regarding the financial assistance for continued rail service or the acquisition of the involved rail line are contained in the Notice of the Commission entitled "Procedures for Pending Rail Abandonment Cases" published in the Federal Register on March 31, 1976, at 41 FR 13691, as amended by publication of May 10, 1978, at 43 FR 30072. All interested persons are advised to follow the instructions contained therein as

well as the instructions contained in the above-referenced decision.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34118 Filed 11-2-79; 8:45 am]

BILLING CODE 7035-01-M

[Directed Service Order No. 1398;  
Authorization Order No. 6]

**Kansas City Terminal Railway Co.  
Directed To Operate Over, Chicago,  
Rock Island & Pacific Railroad Co.,  
Debtor (William M. Gibbons, Trustee)**

Decided: October 26, 1979.

On September 26, 1979, the Commission directed Kansas City Terminal Railway Company (KCT) to provide service as a directed rail carrier (DRC) under 49 U.S.C. § 11125 over the lines of the Chicago, Rock Island & Pacific Railroad Company, Debtor (William M. Gibbons, Trustee) ("RI"). See Directed Service Order No. 1398 (decided and served September 26, 1979; published in the Federal Register on October 1, 1979 at 44 FR 56343).

RI owns 10 units of snow fighting equipment which are in need of repair. Supplemental Order No. 4 to DSO No. 1398 required the DRC to obtain prior Commission approval for all rehabilitation for freight cars and other non-locomotive equipment which exceeds \$1,200 per unit. See Supplemental Order No. 4 (served October 15, 1979) [44 FR 61127, Oct. 23, 1979]: Accordingly, the DRC submitted a list of 10 units of snow fighting equipment requiring repairs costing more than \$1,200 per unit. See "DRC Report No. 5" (dated October 19, 1979).

The DRC sought Commission authorization to repair this snow fighting equipment on the following grounds: (1) Rehabilitation of snow fighting equipment is absolutely essential for directed-service operation over RI lines during the 1979-1980 "snow" season; (2) virtually no major RI snow fighting equipment for terminals is presently serviceable; and (3) operation of RI lines during the initial 60-day period of directed service could be jeopardized without rehabilitation of this equipment.

The cost of materials and labor for repairs to this snow fighting equipment varies from \$1,784 to \$25,000 per unit.

We find:

1. This action will not significantly affect either the quality of the human environment or the conservation of energy resources. See 49 CFR Parts 1106, 1108 (1978).

It is ordered:

1. The DRC is authorized to make repairs to the following snow fighting

equipment at the maximum cost listed for each unit of this equipment.

Description	Number	Cost
Snow Blower.....	HB-1	\$15,000
Snow Blower.....	HB-2	4,000
End Loader.....	EL-2	8,000
Unimog.....	PM001	14,000
Speed Swing.....	CH10	25,000
Motor Grader.....	MG-2	11,000
Jordan Ditcher.....	95320	2,450
Vanderbilt Plow.....	95378	1,784
Vanderbilt Plow.....	95389	4,000
Vanderbilt Plow.....	95583	12,000
Total.....		97,234

2. The repairs authorized above shall be completed within 45 days or the end of the directed-service period (whichever comes first) unless otherwise authorized by the Commission. See DSO No. 1398, page 35 [44 FR 56350, 1st column].

3. This decision shall be effective on its service date.

By the Commission, Railroad Service Board, Members Joel E. Burns, Robert S. Turkington, and John R. Michael. Member Joel E. Burns not participating.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34117 Filed 11-2-79; 8:45 am]

BILLING CODE 7035-01-M

[Docket No. AB-55 (Sub-32F)]

**Seaboard Coast Line Railroad Co.  
Abandonment Near Palmetto Junction  
and Manavista, Fla.; Findings**

Notice is hereby given pursuant to 49 U.S.C. 10903 that by a Certificate and Decision decided October 23, 1979, a finding, which is administratively final, was made by the Commission, Review Board Number 5, stating that, the present and future public convenience and necessity permit the abandonment by the Seaboard Coast Line Railroad Company of a portion of a line of railroad known as the Manavista Spur, Tampa Division, extending from railroad milepost SW 870.19 near Palmetto Junction, to milepost SW 871.00 at Manavista, FL, a distance of 0.81 miles, in Manatee County, FL, subject to the conditions for the protection of employees discussed in AB-36 (Sub-No. 2), *Oregon Short Line R. Co.-Abandonment Goshen*, 360 I.C.C. 91 (1979). A certificate of public convenience and necessity permitting abandonment was issued to the Seaboard Coast Line Railroad Company. Since no investigation was instituted, the requirement of § 1121.38(a) of the Regulations that publication of notice of abandonment decisions in the Federal Register be made only after such a decision becomes administratively final



was waived. Upon receipt by the carrier of an actual offer of financial assistance, the carrier shall make available to the offeror the records, accounts, appraisals, working papers, and other documents shall be made available during regular business hours at a time and place mutually agreeable to the parties.

The offer must be filed and served no later than November 20, 1979. The offer, as filed, shall contain information required pursuant to § 1121.38(b)(2) and (3) of the Regulations. If no such offer is received, the certificate of public convenience and necessity authorizing abandonment shall become effective December 20, 1979.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34121 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M

[Docket No. AB-55 (Sub-33F)]

**Seaboard Coast Line Railroad Co.,  
Abandonment Between Mont Clare  
and Darlington, S.C.; Findings**

Notice is hereby given pursuant to 49 U.S.C. 10903 that by a Certificate and Decision decided October 24, 1979, a finding, which is administratively final, was made by the Commission, Review Board Number 5, stating that, subject to the conditions for the protection of railway employees prescribed by the Commission in AB-36 (Sub-No. 2), *Oregon Short Line R. Co.—Abandonment Goshen*, 360 I.C.C. 91 (1979), the present and future public convenience and necessity permit the abandonment by the Seaboard Coast Line Railroad Company of a line of railroad known as the Mont Clare Spur, extending from railroad milepost AG-285.82 at Mont Clare, SC, to milepost AG-292.71 near Darlington, SC, a distance of 6.89 miles, in Darlington, County, SC. A certificate of public convenience and necessity permitting abandonment was issued to the Seaboard Coast Line Railroad Company. Since no investigation was instituted, the requirement of § 1121.38(a) of the Regulations that publication of notice of abandonment decisions in the Federal Register be made only after such a decision becomes administratively final was waived.

Upon receipt by the carrier of an actual offer of financial assistance, the carrier shall make available to the offeror the records, accounts, appraisals, working papers, and other documents used in preparing Exhibit I (Section 1121.45 of the Regulations). Such documents shall be made available during regular business hours at a time

and place mutually agreeable to the parties.

The offer must be filed and served no later than November 20, 1979. The offer, as filed, shall contain information required pursuant to § 1121.38(b)(2) and (3) of the Regulations. If no such offer is received, the certificate of public convenience and necessity authorizing abandonment shall become effective December 20, 1979.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34122 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M

[Docket No. AB-55 (Sub-31F)]

**Seaboard Coast Line Railroad Co.  
Abandonment Between Calhoun Falls  
and Iva, S.C.; Findings**

Notice is hereby given pursuant to 49 U.S.C. 10903 that by a Certificate and Decision decided October 24, 1979, a finding, which is administratively final, was made by the Commission, Review Board Number 5, stating that, the present and future public convenience and necessity permit the abandonment by the Seaboard Coast Line Railroad Company of a portion of a line of railroad known as the Anderson Subdivision, extending from railroad milepost AKH-527.86, at Calhoun Falls, SC, to milepost AKH-543.21, near Iva, SC, a distance of 15.35 miles, in Abbeville and Anderson Counties, SC, subject to the conditions for the protection of employees discussed in AB-36 (Sub-No. 2), *Oregon Short Line R. Co.—Abandonment Goshen*, 360 I.C.C. 91 (1979), and further that applicant shall keep intact all of the right-of-way underlying the track, including all of the bridges and culverts for a period of 180 days from the effective date of this certificate and decision to permit any state or local government agency or other interested party to negotiate the acquisition for public use of all or any portion of the right-of-way; and *provided further* (a) that, during this 180 day period, applicant shall take measures to prevent significant alteration or deterioration of the bridge, (b) that, in the event the bridge is eventually demolished, applicant will ensure that appropriate measures are taken to adequately record the structure according to standards prescribed by the Historic American Building Survey, and (c) that, if the bridge is sold to another party, the applicant shall insert in the contract of sale a provision ensuring the appropriate recordation of the structure as provided in (b) above. A certificate of public convenience and

necessity permitting abandonment was issued to the Seaboard Coast Line Railroad Company. Since no investigation was instituted, the requirement of § 1121.38(a) of the Regulations that publication of notice of abandonment decisions in the Federal Register be made only after such a decision becomes administratively final was waived.

Upon receipt by the carrier of an actual offer of financial assistance, the carrier shall make available to the offeror the records, accounts, appraisals, working papers, and other documents used in preparing Exhibit I (Section 1121.45 of the Regulations). Such documents shall be made available during regular business hours at a time and place mutually agreeable to the parties.

The offer must be filed and served no later than November 20, 1979. The offer, as filed, shall contain information required pursuant to § 1121.38(b)(2) and (3) of the Regulations. If no such offer is received, the certificate of public convenience and necessity authorizing abandonment shall become effective December 20, 1979.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34123 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M

[Finance Docket No. 29158F]

**Seattle & North Coast Railroad Co.;  
Acquisition and Operation of a Portion  
of a Line of Railroad in the State of  
Washington**

Seattle & North Coast Railroad Company, represented by Michael J. Stecher, Silver, Rosen, Fischer & Stecher, 256 Montgomery Street, San Francisco, CA 94104, hereby give notice that on the 12th day of October 1979, it filed with the Interstate Commerce Commission at Washington, DC, an application pursuant to 49 U.S.C. § 10901 for authority to acquire a portion of the operating lines of the Chicago, Milwaukee, St. Paul & Pacific Railroad Company (Milwaukee), approximately 60 nautical miles from Seattle, WA, at Pier 27 to Port Townsend and 50.8 railroad miles to Port Angeles for a total of 110.8 miles in the counties of King, Jefferson and Clallam in the State of WA.

Applicant proposes to acquire and operate the Port Townsend-Port Angeles Branch of the Milwaukee. The Milwaukee is presently operating said branch. However, it has filed an application to abandon all of its lines west of Miles City, MT which includes

the Port Townsend-Port Angeles Branch, Docket No. AB-7 (Sub-No. 86F).

In the opinion of the applicant, the granting of the authority sought will not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. In accordance with the Commission's regulations (49 CFR 1108.8) in Ex Parte No. 55 (Sub-No. 4), *Implementation—Nat'l Environmental Policy Act, 1969*, 352 L.C.C. 451(1976), any protests may include a statement indicating the presence or absence of any effect of the requested Commission action on the quality of the human environment. If any such effect is alleged to be present, the statement shall indicate with specific data the exact nature and degree of the anticipated impact. See *Implementation—Nat'l Environmental Policy Act, 1969*, *supra* at p. 487.

Pursuant to the provisions of the Interstate Commerce Act, as amended, the proceeding will be handled without public hearings unless comments in support or opposition on such application are filed with the Secretary, Interstate Commerce Commission, 12th and Constitution Avenue, N.W., Washington, D.C. 20423, and the aforementioned counsel for applicant, within 30 days after date of first publication in a newspaper of general circulation. Any interested person is entitled to recommend to the Commission that it approve, disapprove, or take any other specified action with respect to such application.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34120 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M

#### [Notice No. 193]

#### Motor Carrier Temporary Authority Applications

October 23, 1979.

The following are notices of filing of applications for temporary authority under Section 210a(a) of the Interstate Commerce Act provided for under the provisions of 49 CFR 1131.3. These rules provide that an original and six (6) copies of protests to an application may be filed with the field official named in the Federal Register publication no later than the 15th calendar day after the date the notice of the filing of the application is published in the Federal Register. One copy of the protest must be served on the applicant, or its authorized representative, if any, and the protestant must certify that such service has been

made. The protest must identify the operating authority upon which it is predicated, specifying the "MC" docket and "Sub" number and quoting the particular portion of authority upon which it relies. Also, the protestant shall specify the service it can and will provide and the amount and type of equipment it will make available for use in connection with the service contemplated by the TA application. The weight accorded a protest shall be governed by the completeness and pertinence of the protestant's information.

Except as otherwise specifically noted, each applicant states that there will be no significant effect on the quality of the human environment resulting from approval of its application.

A copy of the application is on file, and can be examined at the Office of the Secretary, Interstate Commerce Commission, Washington, D.C., and also in the ICC Field Office to which protests are to be transmitted.

Note.—All applications seek authority to operate as a common carrier over irregular routes except as otherwise noted.

#### Motor Carriers of Property

MC 1515 (Sub-277TA), filed September 14, 1979. Applicant: GREYHOUND LINES, INC., Greyhound Tower, Phoenix, AZ 85077. Representative: Lat J. Celmins, Sr., Commerce Attorney (same address as applicant). Common, regular route, *passenger, and their baggage and express and newspapers in the same vehicle with passengers in one-way and round-trip special operations*, between Port Deposit, MD and the junction of U.S. Hwy 222 and U.S. Hwy 40 at Perryville, MD, serving no intermediate points: From Port Deposit, MD over U.S. Hwy 222 to the junction of U.S. Hwy 40 at Perryville, MD and return over the same route, for 180 days. An underlying ETA seeks 90 days authority. Applicant does intend to tack this authority with authority it presently holds in MC 1515. Supporting shipper(s): Susquehanna Job Corps Center, Susquehanna Job Corps Center, Port Deposit, MD 21904. Send protests to: Ronald R. Mau, District Supervisor, 2020 Federal Bldg., 230 N. 1st Ave., Phoenix, AZ 85025.

MC 2934 (Sub-44TA), filed September 21, 1979. Applicant: AERO MAYFLOWER TRANSIT CO., INC., 9998 North Michigan Road, Carmel, IN 46032. Representative: James L. Beatty, 130 E. Washington St., Suite 1000, Indianapolis, IN 46204. *New furniture*, from Worcester County, MA, to points and places in the States of AL, AR, IA,

KS, LA, MI, MN, MS, MO, OH, TX and WI, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Temple Stewart Co., Holman Street, Baldwinville, MA; Nichols & Stone, 232 Sherman St., Gardner, MA; S. Bent & Brothers, Inc., 85 Winter St., Gardner, MA 01440; and Selig Manufacturing, Selig Manufacturing Industrial Blvd., Leominster, MA 01453. Send protests to: Beverly J. Williams, Transportation Assistant, 429 Federal Bldg., 46 E. Ohio St., Indianapolis, IN 46204.

MC 2934 (sub-45TA), filed October 1, 1979. Applicant: AERO MAYFLOWER TRANSIT CO., INC., 9998 North Michigan Road, Carmel, IN 46032. Representative: James L. Beatty, 130 E. Washington St., Suite 1000 Indianapolis, IN 46204. *New Furniture* from Bronx, NY to points and places in the States of AL, AR, IA, KS, KY, LA, MI, MN, MO, OH, OK, TN, VA and WI for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Art Steel, 170 West 233 St., Bronx, NY 10463. Send protests to: Beverly J. Williams, Transportation Assistant, 429 Federal Bldg., 46 E. Ohio St., Indianapolis, IN 46204.

MC 8544 (Sub-38TA), filed September 20, 1979. Applicant: GALVESTON TRUCK LINE CORPORATION, 7415 Wingate, Houston, TX 77011. Representative: Joe G. Fender, 711 Louisiana, Suite 1150, Houston, TX 77002. *Rubber, natural and crude synthetic, and rubber compounds*, from Port Neches, TX to Stillwater, OK, for 180 days. Supporting shipper(s): Swan Hose Division, Amerace Corp. P.O. Box 509, Worthington, Ohio 43085. Send protests to: John F. Mensing, DS, ICC, 515 Rusk Ave., #8810, Houston, TX 77002.

MC 14314 (Sub-34TA), filed August 24, 1979. Applicant: DUFF TRUCK LINE, INC., P.O. Box 359, Broadway and Vine Sts., Lima, OH 45802. Representative: Paul F. Beery, 275 E. State St., Columbus, OH 43215. *Common; regular: General commodities, except those of unusual value, Classes A and B explosives, commodities in bulk, and those requiring special equipment serving the facilities of or used by General Electric Co. in or near Mt. Vernon, Posey County, IN as an off-route point in connection with carrier's otherwise authorized regular route operations* for 180 days. An underlying ETA seeks 90 days authority. Applicant request authority to interline at St. Louis, MO, Evansville, IN, Detroit, MI, Louisville, KY, Akron, Cincinnati, Cleveland, Columbus, Dayton, Lima, Mansfield and Toledo, OH and to tack this authority

with authority it presently holds in No. MC-14314 and Sub Nos. 16, 17, 18, 19, 20, 22, 23, 25 and authority under temporary lease pursuant to MC-F-12909, Duff Truck Line, Inc.—Purchase (Portion) Associated Transport Inc. These authorities authorize regular route service in IN, OH, and MI. Supporting shipper(s): General Electric Co., Lexan Lane, Mt. Vernon, IN 47620. Send protests to: I.C.C., Fed. Res. Bank Bldg., 101 N. 7th St., Rm. 620, Phila., PA 19106.

MC 14215 (Sub-71TA), filed August 27, 1979. Applicant: SMITH TRUCK SERVICE, INC., P.O. Box 1329, Steubenville, OH 43952. Representative: John L. Alden, 1396 W. Fifth Ave., Columbus, OH 43212. *Coke and coke breeze, in bulk, in dump vehicles* from the facilities of Koppers Co., Inc. at Erie, PA and Toledo, OH to points in CT, DE, DC, IL, IN, IA, KY, ME, MA, MD, MI, MN, MO, NH, NY, NJ, OH, PA, RI, VA, VT, WI, and WV for 180 days. Supporting shipper(s): Koppers Co., Inc., 850 Koppers Bldg., Pittsburgh, PA 15219. Send protests to: I.C.C., Fed. Res. Bank Bldg., 101 N. 7th St., Rm. 620, Phila., PA 19106.

MC 14215 (Sub-72TA), filed September 4, 1979. Applicant: SMITH TRUCK SERVICE, INC., P.O. Box 1329, Steubenville, OH 43952. Representative: James R. Stiverson, 1396 W. Fifth Ave., Columbus, OH 43212. *Mine roof bolts, and materials and supplies used in the installation of mine roof bolts; and materials, equipment and supplies used in the manufacture of mine roof bolts* between Mingo Junction, OH; Tazewell, VA; and Luzerne, PA, on the one hand, and, on the other, points in AL, GA, IN, IL, KY, MI, NC, NY, OH, PA, SC, TN, VA and WV for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Harmony Industries, Inc., Mingo Junction, OH. Send protests to: I.C.C., Fed. Res. Bank Bldg., 101 N. 7th St., Rm. 620, Phila., PA 19106.

MC 29555 (Sub-101TA), filed October 17, 1979. Applicant: BRIGGS TRANSPORTATION CO., N. 400 Griggs-Midway Bldg., St. Paul, MN 55104. Representative: Winston W. Hurd, (same address as applicant). *Common carrier: regular route: General commodities, except those of unusual value, livestock, Class A and B explosives, household goods as defined by the Commission, commodities in bulk, commodities requiring special equipment (except those requiring temperature control) and those injurious or contaminating to other lading serving Columbus, Oconomowoc and Portage, WI as off-route points in connection with applicant's existing regular route operations, for 180 days. An underlying*

ETA seeks 90 days authority. Applicant request authority to interline and to tack this authority with authority it presently holds in No. MC-29555 Sub No. 51. Supporting shipper(s): There are 14 statements in support attached to this application which may be examined at the ICC in Washington, DC or copies of which may be examined in the field office named below. Send protests to: Judith L. Olson, TA, ICC, 414 Fed. Bldg., 110 S. 4th St., Minneapolis, MN 55401.

MC 59444 (Sub-8TA), filed September 20, 1979. Applicant: WALLER TRUCK CO., INC., U.S. Hwy 10 East, Richmond, MO 64085. Representative: Frank W. Taylor, Jr., Suite 600, 1221 Baltimore Ave., Kansas City, MO 64105. *Plastic cups, caps, lids, tumblers, dishes, cutlery, disposable, from the facilities of Thompson Industries, Higginsville, MO to points in AR, OK, KS, NE, IA, IL, KY and TN, for 180 days. Supporting shipper(s): Thompson Industries, 2501 East Magnolia, Phoenix, AZ 85034. Send protests to: Vernon Coble D/S, 600 Federal Bldg., 911 Walnut St., Kansas City, MO 64106.*

MC 59655 (Sub-31TA), filed September 25, 1979. Applicant: SHEEHAN CARRIERS, INC., 62 Lime Kiln Road, Suffern, N.Y. 10901. Representative: George A. Olsen, P.O. Box 357, Gladstone, NJ 07834. *Glass containers, from South Volney, NY, to Williamsburg, VA; for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Owens-Illinois, Inc., P.O. Box 1035, Toledo, OH 43666. Send protests to: Maria B. Kejss, Transportation Assistant, Interstate Commerce Commission, 26 Federal Plaza, New York, N.Y. 10007.*

MC 60014 (Sub-144TA), filed August 23, 1979. Applicant: AERO TRUCKING, INC., P.O. Box 308, Monroeville, PA 15146. Representative: A. Charles Tell, Esquire, 100 East Broad Street, Columbus, OH 43215. *Hydraulics Cylinders and components thereof, from Pocahontas, IO to Franklin, Venango County, PA for 180 days. An underlying ETA for 90 days has been sought. Supporting shipper(s): Iowa Industrial Hydraulics, Inc., Industrial Park Road, Pocahontas, IO 50574. Send Protests to: John J. England, D/S, I.C.C., 2111 Federal Building, Pittsburgh, PA 15222.*

MC 98614 (Sub-TA), filed September 10, 1979. Applicant: ARKANSAS TRANSPORT COMPANY, P.O. Box 702, Little Rock, AR 72203. Representative: Jim Siegler (same address as applicant). *Petroleum and petroleum products, in bulk, from North Little Rock, AR and its commercial zone to Steele, Malden, Campbell and New Madrid, MO, for 180 days. Underlying ETA seeks 90 days*

authority. Supporting Shipper(s): Thompson Oil Company of Tulsa, Inc., 912 Philtower Bldg., Tulsa, OK 74103. Send protests to: William H. Lands, DS, 3108 Federal Bldg., Little Rock, AR 72201.

MC 106074 (Sub-120TA), filed September 20, 1979. Applicant: B AND P MOTOR LINES, INC., Shiloh Road and US Highway 221 South, Forest City, NC 28043. Representative: Clyde W. Carver, P.O. Box 720434, Atlanta, GA 30328. *Foodstuffs, canned or preserved from the facilities of Heinz U.S.A., division of H. J. Heinz Company at Muscatine and Iowa city, IA to Greenville, SC and Jacksonville, FL, for 180 days. An underlying ETA seeks 90 days authority. Supporting Shipper(s): Heinz, USA, PO Box 57, Pittsburgh, PA 15230. Send protests to: Sheila Reece, T/A, 800 Briar Creek Rd., Rm. CC516, Charlotte, NC, 28205.*

MC 106074 (Sub-129TA), filed September 14, 1979. Applicant: B AND P MOTOR LINES, INC., Shiloh Rd and US Hwy. 221 South, Forest City, NC 28043. Representative: John J. Capo, P.O. Box 720434, Atlanta, GA 30328. *Animal feed ingredients (1) from Bainbridge, GA to all points in NC, and SC and (2) from Marshall, TX to all points in GA, SC and NC for 180 days. Supporting shipper(s): Southeastern Minerals, Inc., PO Box 506, Bainbridge, GA. Marshall Minerals, Inc., PO Box 506, Bainbridge, GA 31717. Send protests to: Sheila Reece, T/A, 800 Briar Creek Rd., Rm. CC516, Charlotte, NC 28205.*

MC 106074 (Sub-128TA), filed September 14, 1979. Applicant: B AND P MOTOR LINES, INC., Shiloh Rd. and US Hwy. 221, South, Forest City, NC 28043. Representative: Clyde W. Carver, P.O. Box 720434, Atlanta, GA 30328. *Plastic pellets, chips, fiber, staple, yarn and non-woven fabrics, from Delaware City and Newark, DE, to Laredo, TX, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Hoechst Fibers Industries, Div. of American, Hoechst Corp., P.O. Box 5887, Spartanburg, SC 29304. Send protests to: Sheila Reece, T/A, 800 Briar Creek Rd., Rm. CC516, Charlotte, NC 28205.*

MC 107064 (Sub-136TA), filed August 29, 1979. Applicant: STEERE TANK LINES, INC., P.O. Box 220998, Dallas, TX 75222. Representative: Hugh T. Matthews, 2340 Fidelity Union Tower, Dallas, TX 75201. *Nitrogen compounds, in bags from points in Eddy County, NM to points in TX, AZ and CO for 180 days. An underlying ETA for 90 days filed. Supporting shipper(s): N-Ren Southwest, P.O. Drawer H, Carlsbad, NM 88220. Send protests to: Opal M. Jones, TCS,*

I.C.C., 9A27 Federal Bldg., 819 Taylor Street, Fort Worth, TX 76102.

MC 107295 (Sub-940TA), filed August 27, 1979. Applicant: PRE-FAB TRANSIT CO., P.O. Box 148, Farmer City, IL 61842. Representative: Duane Zehr (same address as applicant). (1) *Buildings, complete, knocked down, or in sections, (2) building sections and building panels, (3) parts and accessories used in the installation and completion of commodities in (1) and (2) above, and (4) metal prefabricated structural components and panels and accessories used in the installation and completion of such commodities*, from the facilities of Armco, Inc., at Hanford, CA to points in WA, OR, ID, NE, UT, AZ, CO, MT, WY, ND, SD, NE, KS, OK, NM, and TX for 180 days. Supporting shipper(s): Armco Inc., 703 Curtis St., Middletown, OH 45043. Send protests to: Cheryl Livingston, TA, ICC, 219 S. Dearborn, Rm. 1386, Chicago, IL 60604.

MC 107455 (Sub-1TA), filed September 12, 1979. Applicant: UNDERWOOD MACHINERY TRANSPORT, INC., 940 West Troy Avenue, Indianapolis, IN 46255. Representative: Alki E. Scopelitis, Scopelitis & Garvin, 1301 Merchants Plaza, Indianapolis, IN 46204. *Pollution control devices*, from Tiffin, OH to points in the United States (including AK but excluding HI), for 180 days. Supporting shipper(s): Seneca Environmental Products, Inc., 82 North Washington St., Tiffin, OH 44883. Send protests to: Beverly J. Williams, Transportation Assistant, ICC, 46 E. Ohio St., Rm. 429, Indianapolis, IN 46204.

MC 109725 (Sub-12TA), filed September 21, 1979. Applicant: K. F. CROCKER TRANSPORTATION CO., INC., Jewell Hill Rd., Ashby, MA 01431. Representative: James M. Burns, 1383 Main Street, Suite 413, Springfield, MA 01103. *Wood chips in bulk*, from Cheshire County and Hillsborough County, NH to Ticonderoga, NY. For 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Tommila Brothers, Inc., Troy, NH 03465. Send protests to: John B. Thomas, DS, ICC, 150 Causeway Street, Boston, MA 02114.

MC 110325 (Sub-111TA), filed September 21, 1979. Applicant: TRANSCON LINES, 101 Continental Boulevard, El Segundo, California 90245. Representative: Wentworth E. Griffin, Esq., Griffin, Dysart, Taylor, Penner & Lay P.C., 1221 Baltimore Avenue, Kansas City, MO 64105. *General commodities, (except Classes A and B explosives, those of unusual value, household goods as defined by the Commission, commodities in bulk, and*

*those requiring special equipment)*, between the junction of U.S. Hwy 69 and Interstate Hwy 235, and the junction of U.S. Hwys 66 and 75, serving no intermediate points, from the junction of U.S. Hwy 69 and Interstate Hwy 235 over Interstate Hwy 235 to the junction of Interstate Hwy 35, then over Interstate Hwy 35 to the junction of Interstate Hwy 435, then over Interstate Hwy 435 to the junction of U.S. Hwy 69, then over U.S. Hwy 69 to the junction of U.S. Hwy 66, then over U.S. Hwy 66 to the junction of U.S. Hwy 75, and return over the same route, for 180 days. An underlying ETA seeks up to 90 days operating authority. Applicant request authority to interline at various points throughout Transcon Line's route system and to tack this authority with authority it presently holds in No. MC-110325 and Subs thereto. Supporting shipper(s): There are no Certificates of Support attached, as this is an Application for an Alternate Route, and all the testimony will relate to the operating efficiencies and economy accruing to the Applicant. Send protests to: Irene Carlos, TA, ICC, P.O. Box 1551, Los Angeles, California 90053.

MC 110325 (Sub-112TA), filed September 21, 1979. Applicant: TRANSCON LINES, 101 Continental Boulevard, El Segundo, California 90245. Representative: Wentworth E. Griffin, Esq., Griffin, Dysart, Taylor, Penner & Lay, P.C., 1221 Baltimore Avenue, Kansas City, MO 64105. *General commodities, (except Classes A and B explosives, those of unusual value, household goods as defined by the Commission, commodities in bulk, and those requiring special equipment)*, between the junction of IL Hwy 92 and U.S. Hwy 67 and the junction of Interstate Hwy 44 and U.S. Hwy 75, serving no intermediate points, and with service at the junction of U.S. Hwy 67 and Interstate Hwy 70 for purposes of joinder only, from the junction of IL Hwy 92 and U.S. Hwy 67 over U.S. Hwy 67 to the junction of Interstate Hwy 44, then over Interstate 44 to the junction of U.S. Hwy 75, and return over the same route, for 180 days. An underlying ETA seeks up to 90 days operating authority. Applicant request authority to interline at various points throughout Transcon Line's route system and to tack this authority with authority it presently holds in No. MC-110325 and Subs thereto. Supporting shipper(s): There are no Certificates of Support attached, as this is an application for an alternate route, and all the testimony will relate to the operating efficiencies and economy accruing to the applicant. Send protests

to: Irene Carlos, TA, ICC, P.O. BOX 1551, Los Angeles, California 90053.

MC 111434 (Sub-102TA), filed September 28, 1979. Applicant: DON WARD, INC., 241 West 58th Avenue, Denver, CO 80216. Representative: Don L. Ward, same address. *Sand in bulk*, from Pueblo, CO to points in OK, for 180 days. An underlying ETA seeks authority for 90 days. Supporting shipper(s): Fountain Sand & Gravel Co., P.O. Box 535, Pueblo, CO 81002. Send protests to: District Supervisor R. L. Buchanan, 492 U.S. Customs House, 721 19th Street, Denver, CO 80202.

MC 113325 (Sub-162TA), filed September 13, 1979. Applicant: SLAY TRANSPORTATION CO., INC., 2001 S. 7th St., St. Louis, MO 63104. Representative: T. M. Tahan (same as above). *Rubber preservatives*, in bulk, in tank vehicles, from Geismar, LA to Akron, Barberton, Bryan and Dayton, OH; Albany, GA; Des Moines, IA; Decatur, IL; Charlotte and Wilson, NC; Pottstown, PA; Laverne and Memphis, TN; Oklahoma City, OK; and Odessa and Waco, TX, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Monsanto Company, St. Louis, MO. Send protests to: P. E. Binder, TS, ICC, Rm. 1465, 210 N. 12th St., St. Louis, MO 63101.

MC 113784 (Sub-90TA), filed September 17, 1979. Applicant: LAIDLAW TRANSPORT LIMITED, 65 Guise Street, Hamilton, Ontario L8L 4M1. Representative: Douglas R. Gowland (address same as above). *Sugar, in bulk, in tank type vehicles*, from ports of entry on the International Boundary line between the United States and Canada located in NY, to Buffalo NY, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): U.S. Sugar Company, Inc., 54 Fulton St., Buffalo, NY 14129. Send protests to: Anne C. Siler, TA, ICC, 910 Federal Bldg., 111 W. Huron Street, Buffalo, NY 14202.

MC 114045 (Sub-550TA), filed September 7, 1979. Applicant: TRANSCOLD EXPRESS, INC., P.O. Box 61228, Dallas, TX 75261. Representative: J. B. Stuart, P.O. box 61228, Dallas, TX 75261. *Meat, meat products and meat by-products and articles distributed by meat packinghouses as described in Section A of Appendix I to the report in Motor Carrier Certificate 61 MCC 209 and 766 (except hides and commodities in bulk) from Brownsville, TX to points in LA and MS, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Armour Fresh Meat Company, 111 W. Clarendon, Greyhound Tower, Phoenix, AZ 85077. Send protests to: Opal M. Jones TCS,*

Room 9A27 Federal Bldg., 819 Taylor St., Forth Worth, TX 76102.

MC 115654 (Sub-167TA), filed September 17, 1979. Applicant: TENNESSEE CARTAGE CO., INC., P.O. Box 23193, Nashville, TN 37202. Representative: Henry E. Seaton, 929 Pennsylvanian Bldg., 425 Thirteenth St. NW., Washington, D.C. 20004. *Foodstuffs, chilled or frozen*, from Nashville, TN, to points in AR, IL, IN, KY, and OH for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Wholesale Pizza Co., Inc., P.O. Box 90345, Nashville, TN 37209. Send protests to: Glenda Kuss, TA, ICC, Suite A-422, U.S. Courthouse, 801 Broadway, Nashville, TN 37203.

MC 115654 (Sub-168TA), filed Sept. 4, 1979. Applicant: TENNESSEE CARTAGE CO., INC., P.O. Box 23193, Nashville, TN 37202. Representative: Henry E. Seaton, 929 Pennsylvania Bldg., 425 Thirteenth St. NW., Washington, D.C. 20004. *Petroleum products, lubricating oils, NOIBN (except in bulk), and automotive accessories dealt in by service stations, and other articles used and/or consumed in service station operations*, from the facilities of Exxon, U.S.A., at Baton Rouge, LA to points in TN, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Exxon Co., U.S.A., P.O. Box 367, Memphis, TN 38101. Send protests to: Glenda Kuss, TA, ICC, Suite A-422, U.S. Courthouse, 801 Broadway, Nashville, TN 37203.

MC 116544 (Sub-179TA), filed September 10, 1979. Applicant: ALTRUK FREIGHT SYSTEMS, INC., 1703 Embarcadero Rd., Palo Alto, CA 95503. Representative: R. G. Lougee, P.O. Box 10061, Palo Alto, CA 94303. Common carrier; regular routes: (1) *Bananas*, and (2) *Agricultural commodities* as defined in Section 203 (b)(6) of the ICC Act, as amended when transported at the same time and in the same vehicle with bananas; from Charleston, SC to IA, IL, IN, FL, MN, MO, & WI for 180 days. Supporting shipper(s): Del Monte Banana Co., P.O. Box 011940, Miami, FL 33101. Send protests to: D/S N. C. Foster, 211 Main, Suite 500, San Francisco, CA 94105.

MC 116915 (Sub-101TA), filed August 28, 1979. Applicant: ECK MILLER TRANSPORTATION CORPORATION, Route #1, Box 248, Rockport, IN 47635. Representative: Fred E. Bradley, P.O. Box 773, Frankfort, KY 40602. *Pollution control and cooling tower equipment and parts thereof*, from the facilities of Ecodyne located at or near Stockbridge, GA, to the Indiana Power Co., at or near Marble Hill, IN, for 180 days. Supporting shipper(s): Ecodyne Cooling Products

Division, P.O. Box 1267, Santa Rosa, CA 95403. Send protests to: Beverly J. Williams, Transportation Assistant, ICC, 46 E. Ohio St., Rm 429, Indianapolis, IN 46204.

MC 119384 (Sub-34TA), filed August 30, 1979. Applicant: MORTON TRUCK LINES, INC., 101 West Willis Avenue, Perry, IA 50220. Representative: Robert R. Rydell, 1020 Savings & Loan Bldg., Des Moines, IA 50309. *Tankage, in bulk, in hopper trailers* from Perry IA to Omaha, NE for 180 days. An underlying ETA seeks 90 day authority. Supporting shipper(s): Western By-Products Co., Box 7234, Omaha, NE 68107. Send protests to: Herbert W. Allen, DS, ICC, 518 Federal Bldg., Des Moines, IA 50309.

MC 119384 (sub-35TA), filed August 30, 1979. Applicant: MORTON TRUCK LINES, INC., 101 West Willis Avenue, Perry, IA 50220. Representative: Robert R. Rydell, 1020 Savings and Loan Bldg., Des Moines, IA 50309. *Animal Feed, in bulk, in hopper trailers*, from Omaha, NE to points in IA for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Western By-Products Co., Division of Beatrice Foods, Box 7234, Omaha, NE 68107. Send protests to: Herbert W. Allen DS, ICC, 518 Federal Bldg., Des Moines, IA 50309.

MC 119864 (sub-76TA), filed August 29, 1979. Applicant: CRAIG TRANSPORTATION CO., 26699 Eckel Rd., Perrysburg, OH 43551. Representative: Brad A. James, 26699 Eckel Rd., Perrysburg, OH 43551. *Such commodities as are dealt in or used by food business houses and wholesale or retail grocers (except in bulk)* from the facilities of Hunt-Wesson Foods in the Chicago, IL commercial zone to points in IN, IA, KY, and WI for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Hunt-Wesson Foods, P.O. Box 127, Rossford, OH 43460. Send protests to: I.C.C., Fed. Res. Bank Bldg., 101 N. 7th St., Rm. 620, Phila., PA 19106.

MC 1211684 (sub-90TA), filed August 31, 1979. Applicant: HORNADY TRUCK LINE, INC., P.O. Box 846, Monroeville, AL 36460. Representative: W. E. Grant, 1702 First Avenue, Birmingham, AL 35233. *Iron and steel articles and aluminum articles* from TX, LA, MS, AL, GA, TN, MO, IL, and IN, to Little Rock, AR, for 180 days. Supporting shipper(s): Barg Steel Company Inc., 1902 E. 22nd Street, Little Rock, AR 72206. Send protests to: Mabel E. Holston, T/A, ICC, Room 1616, 2121 Building, Birmingham, AL 35203.

MC 123744 (sub-62TA), filed August 24, 1979. Applicant: BUTLER TRUCKING COMPANY, P.O. Box 88, Woodland, PA 16881. Representative:

Dwight L. Koerber, Jr., Esquire, 805 McLachlen Building, 666 Eleventh Street NW., Washington, D.C. 20001. *Iron and steel articles from the facilities of Northwestern Steel and Wire Company, at or near Sterling and Rock Falls, IL to points in the Lower Peninsula of Michigan, IN, OH, PA, NY, WV, KY, TN, SC, NC and VA for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Northwestern Steel and Wire Company, 121 Wallace Street, Sterling, IL 61081. Send protests to: J. J. England, D/S, I.C.C., 2111 Federal Building, Pittsburgh, PA 15222.*

MC 124835 (Sub-20TA), filed Sept. 25, 1979. Applicant: PRODUCERS TRANSPORT CO., P.O. Box 4022, Chattanooga, TN 37405. Representative: David K. Fox (same address as applicant). *Cement*, from the facilities of Marquette Cement Co., Cowan, TN; to points in AL, GA, KY, SC, NC, TN, VA, AR, FL, MO, OH, MS, IL, IN, and LA, for 180 days. Supporting shipper(s): The Marquette Co., 2200 First American Center, Nashville, TN 37238. Send protests to: Glenda Kuss, TA, ICC, Suite A-422, U.S. Courthouse, 801 Broadway, Nashville, TN 37203.

MC 125924 (Sub-6TA), filed September 28, 1979. Applicant: MARIS TRANSPORT LTD., 1090 South Service Road East, P.O. Box 158, Oakville, Ontario L6J 4Z5. Representative: Eugene C. Ewald, 100 West Long Lake Rd., Bloomfield Hills, MI 48012. *Motor vehicles, except trailers, in initial and secondary movements, in truckaway service*, from Woodhaven, MI to the port of entry on the US-Canada boundary line located at Detroit, MI, restricted to traffic originating at the facilities of Ford Motor Co., for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Ford Motor Company, Rotunda Drive & Southfield Rd., Dearborn, MI 48121. Send protests to: Anne C. Siler, TA, ICC, 910 Federal Bldg., 111 West Huron St., Buffalo, NY 14202.

MC 126305 (Sub-127TA), filed September 27, 1979. Applicant: BOYD BROTHERS TRANSPORTATION COMPANY, INC., RFD 1, Box 18, Clayton, AL 36016. Representative: George A. Olsen, P.O. Box 357, Gladston, NJ 07934. *Steel bars*, from Auburn, NY; Sharon, PA; Lettsdale, PA; Delran, NJ; and Chicago, IL; to points in AL and GA, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): AFCO Steel, Suite 417, Benjamin Fox Pavilion, Jenkinstown, PA 19046. Send protests to: Mabel E. Holston, T/A, ICC, Room 1616, 2121 Building, Birmingham, AL 35203.



MC 126305 (Sub-128TA), filed October 1, 1979. Applicant: BOYD BROTHERS TRANSPORTATION COMPANY, INC., RFD 1, Box 18, Clayton, AL 36016. Representative: George A. Olsen, P.O. Box 357, Gladston, NJ 07934. *Building material* (except commodities in bulk), between points in AL, FL, GA, KY, LA, MS, NC, TN, for 180 days. Supporting shipper(s): Associated Distributors, Inc., 1491 Piedmont Avenue, (P.O. Box 7187, Station C), Atlanta, GA 30309. Send protests to: Mabel E. Holston, T/A, ICC, Room 1616, 2121 Building, Birmingham, AL 35203.

MC 127705 (Sub-97TA), filed September 10, 1979. Applicant: KREVDA BROS. EXPRESS, INC., P.O. Box 68, Gas City, IN 46933. Representative: Donald W. Smith, 9000 Keystone Crossing, Indianapolis, IN 46240. *Petroleum and petroleum products, vehicle body sealer and/or sound deadner compounds (except in bulk)* from St. Mary and Congo, WV, Farmers Valley, Emlenton, North Warren and New Kensington, PA; Buffalo and North Tonawanda, NY to points in OH, MI, IN, KY, IL, WI and Mo for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Quaker State Oil Refinery Company, P.O. Box 989, Oil City, PA 16301. Send protests to: Beverly-J. Williams, Transportation Assistant, ICC, 429 Federal Bldg., 46 E. Ohio St., Indianapolis, IN 46204.

MC 127705 (Sub-98TA), filed August 29, 1979. Applicant: KREVDA BROS. EXPRESS, INC., P.O. Box 68, Gas City, IN 46933. Representative: Donald W. Smith, Suite 945, 9000 Keystone Crossing, Indianapolis, IN 46240. *Paper and paper products, materials, equipment and supplies used in the manufacture and distribution thereof*, (1) Between Fort Edward, NY and Albany, NY on the one hand and on the other, points in OH, MI, IL, IN, WV and points in PA on and west of Route 219; and (2) Between Philadelphia, PA on the one hand, and, on the other, points in NY, OH, MI, IL, IN and WV for 180 days. Supporting shipper: Scott Paper Company, Scott Plaza, Philadelphia, PA 19113. Send protests to: Beverly J. Williams, Transportation Assistant, ICC, 46 E. Ohio St., Rm 429, Indianapolis, IN 46204.

MC 128205 (Sub-88TA), filed September 27, 1979. Applicant: BULKOMATIC TRANSPORT COMPANY, 12000 South Doty Avenue, Chicago, IL 60628. Representative: Arnold L. Burke, 180 North LaSalle Street, Chicago, IL 60601. *Flour* in bulk, from Buffalo, NY to MA, PA, NJ, VA, WV, KY, OH, IN, MI and IL for 180 days. Supporting shipper(s): International Multifoods,

Buffalo, NY., Peavey Company, Minneapolis, MN. Send protests to: Annie Booker, TA, ICC, 219 S. Dearborn Street, Rm 1386, Chicago, IL 60604.

MC 128555 (Sub-37TA), filed August 30, 1979. Applicant: MEAT DISPATCH, INC., 2103 17th St., East, Palmetto, FL 33561. Representative: Robert D. Gunderman, 710 Statler Bldg., Buffalo, NY 14202. Contract carrier—Irrregular route: *Merchandise as dealt in by retail variety stores* between all points in the U.S. (except AK and HI) restricted to the transportation of traffic under a continuing contract or contracts with McCrory Stores, Division of McCrory Corporation for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): McCrory Stores, Division of McCrory Corp., 2955 East Market St., York, PA 17402. Send protest to: Donna M. Jones, T/A, ICC-BOP, Monterey Bldg., Suite 101, 8410 N.W. 53rd Ter., Miami, FL 33166.

MC 128555 (Sub-38TA), filed September 24, 1979. Applicant: MEAT DISPATCH, INC., 2103 17th St., East, Palmetto, FL 33561. Representative: Robert D. Gunderman, 710 Statler Bldg., Buffalo, NY 14202. Contract Carrier—Irrregular Route: *Canned foodstuffs* from Franklin Park, IL, to points in AR, CT, DC, FL, GA, IN, KS, KY, LA, MA, MD, MO, MS, NC, NJ, NY, OH, OK, PA, SC, TN, TX, VA and WV, restricted to the transportation of traffic under a continuing contract or contracts with Fearn International, Inc. for 180 days. Supporting shipper(s): Fearn International, Inc., 9353 Belmont, Franklin Park, IL 60131. Send protests to: Donna M. Jones, T/A, ICC-BOP, Monterey Bldg., Suite 101, 8410 N.W. 53rd Ter., Miami, FL 33166.

MC 134105 (Sub-66TA), filed September 25, 1979. Applicant: CELERYVALE TRANSPORT, INC., 208 East 28th St., Chattanooga, TN 37410. Representative: Daniel O. Hands, Suite 200, 205 West Touhy Ave., Park Ridge, IL 60068. *Foodstuffs* (except commodities in bulk), (1) from the facilities of M & M Mars, Snack Masters Division located at Albany, Ga, Jacksonville, FL, and Elizabeth, NJ to Bells Garden, Milpitas and Vernon, CA; Denver, CO; Jacksonville, FL; Atlanta and Morrow, GA; Chicago, IL; Indianapolis, IN; Cockeysville and Foxboro, MD; Detroit, MI; New Brighton, MN; Kansas City, MO; Elizabeth and Pennsauken, NJ; Charlotte, NC; Cleveland and Columbus, OH; Portland, OR; Chattanooga and Memphis, TN; Arlington, TX and Salt Lake City UT; and their respective commercial zones and (2) Between the facilities of M & Mass, Snack Masters Division at

Albany, GA; Jacksonville, FL and Elizabeth NJ, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): M & M Mars, Snack Master Division, P.O. Box 3289, Oakridge Drive, Albany, GA 31706. Send protests to: Glenda Kuss, TA, ICC, Suite A-422, U.S. Courthouse, 801 Broadway, Nashville, TN 37203.

MC 134405 (Sub-86TA), filed September 18, 1979. Applicant: BACON TRANSPORT COMPANY, P.O. Box 1134, Ardmore, OK 73401. Representative: Wilbur L. Williamson, Suite 615, East, The Oil Center, 2601 Northwest Expressway, Oklahoma City, OK 73112. *Limestone*, from Johnson County, OK, to points in AR, CO, KS, LA, NM, & TX, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Delta Mining Corporation, 1535 W. Mockingbird, Suite 401, Dallas, TX 75235. Send protests to: Connie Stanley, ICC, Rm. 240, 215 N.W. 3rd, Oklahoma City, OK 73102.

MC 134755 (Sub-209TA), filed September 7, 1979. Applicant: CHARTER EXPRESS, INC., P.O. Box 3772, Springfield, MO 65804. Representative: Raymond P. Keigher, 1400 Gerard Street, Rockville, MD 20850. *General Commodities* (except those of unusual value, classes A & B explosives, household goods as defined by the Commission, commodities in bulk, and those requiring special equipment), from points in MA, NH, NY, PA, and VT, to those points in the United States in or west of OH, KY, TN, GA and FL (except ND, SD, MT, WY, ID, UT, NM, AK, and HI), restricted to the transportation of traffic originating at the named origins and destined to the indicated destinations, for 180 days. Supporting shipper(s): New England Shipping Association Co-Operative, 1029 Pearl Street, Brockton, MA 02401. Send protests to: Vernon V. Coble, DS, ICC, 600 Fed. Bldg., 911 Walnut St., Kansas City, MO 64106.

MC 135364 (Sub-41TA), filed August 24, 1979. Applicant: MORWALL TRUCKING, INC., R.D. 3, Box 76C, Moscow, PA 18444. Representative: J. G. Dail, Jr., P.O. Box LL, McLean, VA 22101. *Contract; irregular: (1) Artificial trees, wreaths, garlands, and shrubbery, and (2) equipment, materials, and supplies (except commodities in bulk) used in the manufacturing and distribution of the commodities named in (1) above*, between the facilities of American Technical Industries, Inc., located at West Cocksackie, NY, on the one hand, and, on the other, points in CT, ME, MA, NH, RI, VT, and VA for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): American

Technical Industries, Inc., 29 Elm Ave., Mt. Vernon, NY 10550. Send protests to: I.C.C., Fed. Res. Bank Bldg., 101 N. 7th St., Rm. 620, Phila., PA 19106.

MC 135895 (Sub-58TA), filed September 7, 1979. Applicant: B & R DRAYAGE, INC., P.O. Box 8534, Battlefield Sta., Jackson, MS 39204. Representative: Douglas C. Wynn, P.O. Box 1295, Greenville, MS 38701. *Filters, air filter media, and insulating materials (in containers) and (2) equipment, materials and supplies used in the manufacture and distribution of commodities described in (1) above* (except commodities in bulk and those requiring special equipment) between the facilities of Precision Aire, Inc. at or near Dallas, TX; Kenner, LA; St. Petersburg, FL; Charlotte, NC; and Atlanta, GA, on the one hand, and, on the other, points in AL, AR, FL, GA, LA, MO, MS, NC, OK, SC, TN and TX, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Precision Aire, Inc., P.O. Box 7588, St. Petersburg, FL 33713. Send protests to: Alan Tarrant, D/S, ICC, Federal Building, Suite 1441, 100 W. Capitol St., Jackson, MS 39201.

MC 135895 (Sub-59TA), filed September 11, 1979. Applicant: B & R DRAYAGE, INC., P.O. Box 8534, Battlefield Sta., Jackson, MS 39204. Representative: Harold H. Mitchell, Jr., P.O. Box 1295, Greenville, MS 38701. *(1) Ground clay, crude clay, floor sweeping compounds and absorbents (except in bulk) and (2) materials, equipment and supplies (except in bulk) used in the manufacture, sale and distribution of the commodities in part (1) above* between the facilities of Malton, Inc. located at or near Middleton, TN and points in AL, AR, FL, GA, KS, LA, MO, MS, NC, OK, SC, and TX, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Malton, Inc., 100 8th St., P.O. Box 626, Memphis, TN 38101. Send protests to: Alan Tarrant, D/S, ICC, Federal Building, Suite 1441, 100 W. Capitol St., Jackson, MS 39201.

MC 136385 (Sub-12TA), filed August 29, 1979. Applicant: HALL WAY, INC., P.O. Box 22, Ankeny, IA 50021. Representative: Elaine M. Conway, 10 S. LaSalle St., Chicago, IL 60603. *Printed matter*, from the facilities of Meredith Corporation at Des Moines, IA to points in the United States except AK, CA, CO, HI, ID, MT, NV, OR, UT, NM and AZ for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Meredith Corporation, 3701 S. W. Park Ave., Des Moines, IA 50305. Send protests to: Herbert W. Allen, DS, ICC, 518 Federal Bldg., Des Moines, IA 50309.

MC 136605 (Sub-134TA), filed September 11, 1979. Applicant: DAVIS BROS. DIST., INC., P.O. Box 8058 Missoula, MT 59807. Representative: Allen P. Felton (same address as applicant). *Railroad ties* from Townsend, MT to ports of entry on the U.S.-Canada International Boundary line in MT, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Wicks Forest Industries, P.O. Drawer P, Townsend, MT 59844. Send protests to: Paul J. Labane, DS, ICC, 2602 First Avenue North, Billings, MT 59101.

MC 136635 (Sub-24TA), filed July 10, 1979. Applicant: UNIVERSAL CARTAGE, INC., 640 W. Ireland Road, South Bend, IN 46680. Representative: Donald W. Smith, Suite 945, 9000 Keystone Crossing, Indianapolis, IN 46240. *Iron and steel articles*, from the facilities of Enamel Products & Plating at Portage, IN to points in MI, for 180 days. Supporting shipper: Enamel Products & Plating, PO Box 279, Portage, IN 46368. Send protests to: Beverly J. Williams, Transportation Assistant, ICC, 46 E. Ohio St., Rm 429, Indianapolis, IN 46204.

MC 138104 (Sub-85TA), filed September 11, 1979. Applicant: MOORE TRANSPORTATION CO., INC., 3509 N. Grove St., Fort Worth, TX 76106. Representative: Bernard H. English, 6270 Firth Road, Fort Worth, TX 76116. *Precast concrete beams* from Bexar County, TX to points in LA, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Manco Prestress Company, Rt. 2, Box 223, San Antonio, TX 78229. Send protests to: Opal M. Jones, TCS, Room 9A27, Federal Bldg., 819 Taylor St., Fort Worth, TX 76102.

MC 138875 (Sub-242TA), filed September 17, 1979. Applicant: SHOEMAKER TRUCKING COMPANY, 11900 Franklin Road, Boise, ID 83705. Representative: F. L. Sigloh (same as above). *Petroleum products, except commodities in bulk*, from the facilities of Shell Oil Company in Multnomah County, OR to the facilities of Shell Oil Co., in Malheur County, OR and those points in ID in and south of Adams, Valley and Lemhi Counties, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Gem Fuel Company, 1331 11th Ave. North Ext., Nampa, ID 83651. Send protests to: Barney L. Hardin, D/S, ICC, Suite 110, 1471 Shoreline Dr., Boise, ID 83702.

MC 138875 (Sub-243TA), filed September 17, 1979. Applicant: SHOEMAKER TRUCKING COMPANY, 11900 Franklin Road, Boise, ID 83705. Representative: F. L. Sigloh (same as above). *Metal tool boxes and tanks and pickup accessories*, from Jonesboro, AR

to points in CA, ID, MI, MN, MT, ND, OR, SD, WA and WI, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Delta, Inc., 4800 Kreger Drive, Jonesboro, AR 72401. Send protests to: Barney L. Hardin, D/S, ICC, Suite 110, 1471 Shoreline Dr., Boise, ID 83702.

MC 139495 (Sub-487TA), filed September 18, 1979. Applicant: NATIONAL CARRIERS, INC., P.O. Box 1358, Liberal, KS 67901. Representative: Herbert Alan Dubin, 1320 Fenwick Lane, Silver Springs, MD 20910. *Items such as sold, distributed by and dealt in by retail, wholesale, department, discount and variety stores*, Long Beach and Los Angeles, CA to Kansas City, KS; Kansas City, MO; St. Louis, MO and Chicago, IL, common irregular, for 180 days. Supporting shipper(s): Venture Stores, 615 Northwest Plaza, St. Ann, MO 63074. Send protests to: M. E. Taylor, DS, ICC, 101 Litwin Bldg., Wichita, KS 67202.

MC 139495 (Sub-486TA), filed September 17, 1979. Applicant: NATIONAL CARRIERS, INC., P.O. Box 1358, Liberal, KS 67901. Representative: Herbert Alan Dubin, 1320 Fenwick Lane, Silver Spring, MD 20910. *Such commodities as are dealt in by retail and chain grocery, hardware, and drug stores* from facilities of Purex located at or near St. Louis, MO, to all points in KS, for 180 days, common, irregular. Supporting shipper: Purex Corporation, 6901 McKissock, St. Louis, MO 63147.

MC 139555 (Sub-10TA), filed August 28, 1979. Applicant: MODULAR TRANSPORTATION CO., P.O. Box 1822, Grand Rapids, MI 49501. Representative: William D. Parsley, 1200 Bank of Lansing Building, Lansing, MI 48933. *Iron and Steel articles and materials, equipment and supplies* used in the manufacture thereof, between Chicago, IL and the commercial zone thereof and the facilities of Dennen Steel Corp. at or near Grand Rapids, MI. For 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Dennen Steel Corp., P.O. Box D, Grand Rapids, MI 49501. Send protests to: C. R. Flemming, D/S, I.C.C., 225 Federal Building, Lansing, MI 48933.

MC 140285 (sub-8TA), filed August 27, 1979. Applicant: LARRY E. HICKOX d.b.a., LARRY E. HICKOX TRUCKING, Box 95, Casey, IL 62420. Representative: Michael O'Hara, 300 Reisch Bldg., Springfield, IL 62701. Contract, irregular routes. *Liquid paint dryer, in containers, and liquid petroleum products, in containers*, for the account of Mooney Chemicals, Inc., from Franklin, PA to Oakland and Los Angeles, CA for 180 days. Supporting shipper(s): Mooney Chemicals, Inc., 2301 Scranton Rd.,

Cleveland, OH 44113. Send protests to: Cheryl Livingston, TA, ICC, 219 S. Dearborn, Rm. 1386, Chicago, IL 60604.

MC 140484 (sub-57TA), filed September 24, 1979. Applicant: LESTER COGGINS TRUCKING, INC., 2671 E. Edison Ave., P.O. Box 69, Fort Myers, FL 33902. Representative: Frank T. Day (same address as applicant). *Tread rubber in containers and skidded from* Griffin, GA, to Fort Myers, FL for 180 days. Supporting shipper(s): Fort Myers Bandag Retreads, 2203 Alicia St., Fort Myers, FL 33901. Send protests to: Donna M. Jones, T/A, ICC, Bop, Monterey Bldg., Suite 101, 8410 N.W., 53rd Ter., Miami, FL 33166.

MC 140615 (sub-51TA), filed September 4, 1979. Applicant: DAIRYLAND TRANSPORT, INC., P.O. Box 1116, Wisconsin Rapids, WI 54494. Representative: Dennis Brown (same address as applicant). *General commodities*, except those of unusual value, Classes A & B explosives, household goods as defined by the Commission, commodities in bulk and those requiring special equipment from facilities of East-West Shippers Assoc., Inc., Chicago, IL to points in CO, GA, MD, MA, MN, MO, NJ, PA, TX & WI, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): East-West Shippers Assoc., Inc., 2000 71st St., Philadelphia, PA 19142. Send protests to: Gail Daugherty, TA, ICC, 517 E. Wisconsin Ave., Rm. 619, Milwaukee, WI 53202.

MC 140755 (sub-68TA), filed September 20, 1979. Applicant: BRAY TRANSPORTS, INC., 1401 N. Little Street, P.O. Box 270, Cushing, OK 74023. Representative: Dudley G. Sherrill (same address as applicant). *Alcohol*, from Kansas City, MO, to Wichita, KS, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Derby Refining Company, P.O. Box 1030, Wichita, KS 67201. Send protests to: Connie Stanley, ICC, Rm. 240, 215 N.W., 3rd, Oklahoma City, OK 73102.

MC 140755 (Sub-67TA), filed September 20, 1979. Applicant: BRAY TRANSPORTS, INC., 1401 N. Little Street, P.O. Box 270, Cushing, OK 74023. Representative: Dudley G. Sherrill (same address as applicant). *Alcohol, denatured with less than 5% gasoline content*, from Decatur, IL, to the state of KS, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Highway Oil, Inc., 1200 First National Bank, Topeka, KS 66603. Send protests to: Connie Stanley, ICC, Rm. 240, 215 N.W. 3rd, Oklahoma City, OK 73102.

MC 141084 (Sub-17TA), filed September 7, 1979. Applicant:

NATIONAL FREIGHT LINES, INC., 13023 Arroyo Ave., P.O. Box 1031, San Fernando, California 91341. Representative: Bill D. Gardner (same address as above). *Contract; Irregular; Canned goods*, from points in CA to points in AR, CO, FL, GA, KS, LA, MI, NE, MO, NC, OH, OK, TN, TX and WI, for 180 days. Supporting shipper(s): Shurfine-Central Corporation, Assistant Distribution Manager and Traffic Manager, 2100 N. Mannheim Road, Northlake, IL 60164. Send protests to: Irene Carlos, TA, ICC, P.O. Box 1551, Los Angeles, CA 90053.

MC 141205 (Sub-34TA), filed October 2, 1979. Applicant: HUSKY OIL TRANSPORTATION COMPANY, 666 South Cherry Street, Denver, CO 80222. Representative: F. Robt. Reeder and James M. Elegante, P.O. Box 11898, Salt Lake City, UT 84147. *Contract-irregular—Crude Oil, scrubber oil and condensate* from points in Ness County, KS to the Husky Oil Company pipeline injection station near Anton, CO, for 180 days. An underlying ETA seeks 90 days authority. Supporting shipper(s): Husky Oil Company, 600 South Cherry St., Denver, CO 80222. Send protests to: H. Ruoff, 492 U.S. Customs House, Denver, CO 80202.

MC 141385 (Sub-5TA), filed September 17, 1979. Applicant: PENNER FEED & SUPPLY, INC., Inman, KS 67546. Representative: Robert B. Pepper, 168 Woodbridge Ave., Woodbridge, NJ 08094. *Contract Carrier*. Plastic and plastic return, materials, supplies and equipment used in the manufacture and sale thereof, except in bulk from (1) LA & NJ to McPherson, KS; (2) From McPherson, KS to points and places in the U.S., except AK & HI, for 180 days, irregular routes; Supporting shipper: Van Guard Plastic, Inc., 831 N. Van Guard St., McPherson, KS. Send protests to: M. E. Taylor, DS, ICC, 101 Litwin Bldg., Wichita, KS 67202.

By the Commission.  
Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34114 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M

#### Agricultural Cooperatives; Notice to the Commission of Intent To Perform Interstate Transportation for Certain Nonmembers

Dated: October 31, 1979.

The following Notices were filed in accordance with section 10526 (a)(5) of the Interstate Commerce Act. These rules provide that agricultural cooperatives intending to perform nonmember, nonexempt, interstate

transportation must file the Notice, Form BOP 102, with the Commission within 30 days of its annual meetings each year. Any subsequent change concerning officers, directors, and location of transportation records shall require the filing of a supplemental Notice within 30 days of such change. The name and address of the agricultural cooperative, the location of the records, and the name and address of the person to whom inquiries and correspondence should be addressed, are published here for interested persons. Submission of information that could have bearing upon the propriety of a filing should be directed to the Commission's Bureau of Investigations and Enforcement, Washington, D.C. 20423. The Notices are in a central file, and can be examined at the Office of the Secretary, Interstate Commerce Commission, Washington, D. C.

#### (1) Complete Legal Name of Cooperative Association Or Federation Of Cooperative Associations: Missouri Farmers Association, Inc.

Principal Mailing Address (Street No., City, State, and Zip Code): 201 South 7th St., Columbia, MO 65201.

Where Are Records Of Your Motor Transportation Maintained (Street No., City, State and Zip Code): 201 South 7th St., Columbia, MO 65201.

Person To Whom Inquiries And Correspondence Should Be Addressed (Name and Mailing Address): Dale E. Bolander, 201 South 7th St. Columbia, MO 65201.

#### (2) Complete Legal Name Of Cooperative Association Or Federation Of Cooperative Associations: Nurserymens and Farmers Shipping Association.

Principal Mailing Address (Street No., City, State, and Zip Code): P.O. Box 313, Warehouse Point, CT 06088.

Where Are Records Of Your Motor Transportation Maintained (Street No., City, State and Zip Code): Shoham Road, Warehouse Point, CT 06088.

Person To Whom Inquiries And Correspondence Should Be Addressed (Name and Mailing Address): Charles Frasca, P.O. Box 313, Warehouse Point, CT 06088.

Agatha L. Mergenovich,  
Secretary.

[FR Doc. 79-34115 Filed 11-2-79; 8:45 am]  
BILLING CODE 7035-01-M



[Directed Service Order No. 1398;  
Authorization Order No. 3]

**Kansas City Terminal Railway Co.  
Directed To Operate Over Chicago,  
Rock Island & Pacific Railroad Co.,  
Debtor (William M. Gibbons, Trustee)**

Decided: October 24, 1979.

On September 26, 1979, the Commission directed Kansas City Terminal Railway Company (KCT) to provide service as a directed rail carrier (DRC) under 49 U.S.C. § 11125 over the lines of the Chicago, Rock Island & Pacific Railroad Company, Debtor (William M. Gibbons, Trustee) ("RI"). See Directed Service Order No. 1398 (decided and served September 26, 1979; published in the Federal Register on October 1, 1979 at 44 FR 56343).

RI owns numerous locomotives which are in need of repair. DSO No. 1398 required the DRC to obtain prior Commission approval for all rehabilitation of locomotives which exceeds \$3,000 per unit. See DSO No. 1398, at page 25 [44 FR 56348, 1st column]. Accordingly, the DRC submitted a list of 38 locomotives requiring repairs costing more than \$3,000 per locomotive. See "DRC Report No. 3" [dated October 16, 1979].

The DRC sought Commission authorization to repair these locomotives on the grounds that: (1) The addition of these units will help alleviate the locomotive shortage; (2) these units are needed because of the large number of bad order locomotives requiring heavy repairs; and (3) the DRC's operations are expanding each day to additional lines of railroad.

The cost of materials and labor for repairs to these locomotives varies from \$3,412 to \$21,090 per unit.

*We find:* (1) This action will not significantly affect the quality of the human environment or the conservation of energy resources. See 49 CFR Parts 1106, 1108 (1978).

*It is ordered:* (1) The DRC is authorized to make repairs to the following locomotives at the maximum cost listed for each locomotive:

Description	RI Loco. No.	Cost
U-33-B GE 3300 HP	192	\$16,088
U-25 GE 2500 HP	204	9,390
U-25 GE 2500 HP	217	6,660
U-25 GE 2500 HP	226	6,660
U-25 GE 2500 HP	229	11,550
U-25 GE 2500 HP	231	4,150
U-28 GE 2800 HP	270	13,320
U-28 GE 2800 HP	272	7,820
U-28 GE 2800 HP	294	3,550
GP-35 EMD 2500 HP	327	7,770
GP-40 EMD 3000 HP	355	19,040
GP-40 EMD 3000 HP	365	6,710
GP-40 EMD 3000 HP	382	17,070
GP-40 EMD 3000 HP	387	17,070
GP-40 EMD 3000 HP	390	7,290
GP-40 EMD 3000 HP	395	9,290

Description	RI Loco. No.	Cost
GP-18 EMD 1800 HP	1333	19,290
GP-9 EMD 1750 HP	4482	21,090
GP-7 EMD 1500 HP	4478	6,710
GP-7 EMD 1500 HP	4500	13,390
U-30-C GE 3000 HP	4591	7,870
GP-40 EMD 3000 HP	4702	15,245
GP-40 EMD 3000 HP	4705	6,710
GP-40 EMD 3000 HP	4710	6,710
GP-40 EMD 3000 HP	4711	6,710
GP-40 EMD 3000 HP	4715	6,710
GP-40 EMD 3000 HP	4718	16,930
SD-40-2 EMD 3000 HP	4796	13,465
GP-40 EMD 3000 HP	352	9,290
GP-40 EMD 3000 HP	340	9,290
GP-40 EMD 3000 HP	356	3,412
GP-7 EMD 1500 HP	4520	4,412
GP-7 EMD 1500 HP	4537	7,299
GP-35 EMD 2500 HP	333	9,290
GP-40 EMD	350	9,290
U-30-C GE 3000 HP	4589	9,290
GP-40 EMD 3000 HP	4204	9,290
GP-7 EMD 3000	4459	7,609
<b>Total</b>		<b>382,730</b>

(2) To the extent that repairs on any locomotive exceed \$3,000, the DRC is required to offset the payment against monies it owes the Rock Island Trustee for rentals on RI locomotives, rolling stock, and other equipment.

(3) This decision shall be effective on its service date.

By the Commission. Chairman O'Neal, Vice Chairman Stafford, Commissioners Gresham, Clapp, Christian, Trantum, Gaskins, and Alexis. Commissioner Gresham concurs.

Agatha L. Mergenovich,

Secretary.

[FR Doc. 79-34116 Filed 11-2-79; 8:45]

BILLING CODE 7035-01-M

## OFFICE OF MANAGEMENT AND BUDGET

### Agency Forms Under Review

#### Background

October 31, 1979.

When executive departments and agencies propose public use forms, reporting, or recordkeeping requirements, the Office of Management and Budget (OMB) reviews and acts on those requirements under the Federal Reports Act (44 USC, Chapter 35). Departments and agencies use a number of techniques including public hearings to consult with the public on significant reporting requirements before seeking OMB approval. OMB in carrying out its responsibility under the Act also considers comments on the forms and recordkeeping requirements that will affect the public.

#### List of Forms Under Review

Every Monday and Thursday OMB publishes a list of the agency forms received for review since the last list was published. The list has all the entries for one agency together and grouped into new forms, revisions, extensions, or reinstatements. Each

entry contains the following information:

The name and telephone number of the agency clearance officer;

The office of the agency issuing this form;

The title of the form;

The agency form number, if applicable;

How often the form must be filled out;

Who will be required or asked to report;

An estimate of the number of forms that will be filled out;

An estimate of the total number of hours needed to fill out the form; and

The name and telephone number of the person or office responsible for OMB review.

Reporting or recordkeeping requirements that appear to raise no significant issues are approved promptly. In addition, most repetitive reporting requirements or forms that require one half hour or less to complete and a total of 20,000 hours or less annually will be approved ten business days after this notice is published unless specific issues are raised; such forms are identified in the list by an asterisk (\*).

#### Comments and Questions

Copies of the proposed forms and supporting documents may be obtained from the agency clearance officer whose name and telephone number appear under the agency name. Comments and questions about the items on this list should be directed to the OMB reviewer or office listed at the end of each entry.

If you anticipate commenting on a form but find that time to prepare will prevent you from submitting comments promptly, you should advise the reviewer of your intent as early as possible.

The timing and format of this notice have been changed to make the publication of the notice predictable and to give a clearer explanation of this process to the public. If you have comments and suggestions for further improvements to the notice, please send them to Stanley F. Morris, Deputy Associate Director for Regulatory Policy and Reports Management, Office of Management and Budget, 726 Jackson Place, Northwest, Washington, D.C. 20503.

#### DEPARTMENT OF COMMERCE

Agency Clearance Officer—Edward Michals—377-3627

#### New Forms

Bureau of the Census  
1979 Farm Finance Survey (operator and landlord)

**79-A9A & 79-A9B****Single Time**

National Sample From 1978 Census of Agriculture, 90,000 responses; 55,000 hours

Richard Sheppard, 395-3211

**Revisions**

Bureau of the Census

Radio Receivers and Television Sets, Phonographs and Record Players, Speakers, and Related Equipment

MA-36M

Annually

Manufacturers of Consumer Electronic Products, 200 responses; 200 hours

Office of Federal Statistical Policy & Standard, 673-7974

**DEPARTMENT OF COMMERCE**

Agency Clearance Officer—Edward Michals—377-3627

**Revisions**

Bureau of the Census

Switchgear, Switchboard Apparatus, Relays, and

Industrial Controls (Shipments)

MA-36A

Annually

Manufacturers of products in item 4 above,

750 responses; 750 hours

Office of Federal Statistical Policy and Standard, 673-7974

Bureau of the Census

Wiring Devices and Supplies (Shipments)

MA-36K

Annually

Manufacturers of wiring devices

400 responses; 534 hours

Office of Federal Statistical Policy and Standard, 673-7974

Bureau of the Census

\*Flour Milling Products (Production, Stocks, and Capacity)

M-20A

Monthly

Flour Millers

2,400 responses; 1,200 hours

Office of Federal Statistical Policy and Standard, 673-7974

**Extensions**

Bureau of the Census

\*Steel Mill Shapes and Forms (receipts, use, and inventories)

M33H

Monthly

Consumers of steel mill shapes and forms

3,000 responses; 500 hours

Office of Federal Statistical Policy and Standard, 673-7974

**DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE**

Agency Clearance Officer—William Riley—245-7488

**New Forms**

Health Resources Administration

Burn Patient Impact Questionnaires

Single time

Burn victims and families, 450

responses; 227 hours

Richard Eisinger, 395-3214

Office of Human Development

\*Social Service Expenditures Under Title XX

41-18-8

Quarterly

State welfare agencies, 212 responses; 106 hours

Barbara F. Young, 395-6132

Social Security Administration

Periodic Earnings Statement Pilot

Project Questionnaires

SSA-599 (Parts 1, 2, and 3)

Single time

Wage earning public paying social security tax, 4,475 responses; 1,119 hours

Barbara F. Young, 395-6132

Social Security Administration

Quarterly Budget Estimates

OCSE-25

Quarterly

State welfare agencies, 216 responses; 216 hours

Barbara F. Young, 395-6132

**Revisions**

National Institutes of Health

Application for Continuation Grant and Notice of

Research Project

PHS 2590 and PHS 166

Annually

Program directors or principle

investigators, 13,800 responses;

276,000 hours

Richard Eisinger, 395-3214

**EQUAL EMPLOYMENT OPPORTUNITY COMMISSION**

Agency Clearance Officer—Sally E.

Crocker—634-6983

**Extensions**

State and local government information

(EEO-4)

EEOC 164

Annually

State and local government with 15+ employees, 45,600 responses; 364,800 hours

Laverne V. Collins, 395-3214

**COUNCIL ON WAGE AND PRICE STABILITY**

Agency Clearance Officer—Roy A.

Nierenberg—456-6286

**New Forms**

Report on company organization—(PAY)

CO-1 (PAY)

Single time

Large companies, private sector, 1,100 responses; 550 hours

Arnold Strasser, 395-5080

Report on pay

Pay-3

Single time

Large companies private sector, 1,030 responses; 4,120 hours

Arnold Strasser, 395-5080

Report on company organization—(price)

CO-1 (PRICE)

Single time

Large companies, private sector, 1,300 responses; 2,600 hours

Arnold Strasser, 395-5080

Form pay-2

Pay-2

Annually

State and local governments with 5,000 or more employees, 124 responses; 124 hours

Arnold Strasser, 395-5080

**NATIONAL COMMISSION ON SOCIAL SECURITY**

Agency Clearance Officer—Francis J.

Crowley—376-2571

**New Forms**

Public Survey on Social Security

#1616

Single time

5Adult population

1,500 responses; 1,125 hours

Barbara F. Young, 395-6132

**RAILROAD RETIREMENT BOARD**

Agency Clearance Officer—Paulino

Lohens—312-751-4693

**Revisions**

\*Unemployment Claims Agent's Placement Report

ES-22

5On Occasion

Unemployment claims agent

2,300 responses; 192 hours

Barbara F. Young, 395-6132

**TENNESSEE VALLEY AUTHORITY**

Agency Clearance Officer—Eugene E.

Mynatt—615-755-2915

**New Forms**

Profile of Land Between the Lakes Deer Hunters

Single time

Land between the lakes bow and gun deer hunters

2,225 responses, 556 hours

Charles A. Ellett, 395-5080

Stanley E. Morris,

Deputy Associate Director for Regulatory Policy and Reports Management.

[FR Doc. 79-34253 Filed 11-2-79; 8:45 am]

BILLING CODE 3110-01-M

# Sunshine Act Meetings

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

## CONTENTS

	Items
Civil Aeronautics Board.....	1
Commodity Futures Trading Commission.....	2, 3
Federal Communications Commission.....	4, 5
Federal Election Commission.....	6
Federal Maritime Commission.....	7
Federal Reserve System.....	8
Legal Services Corporation.....	9, 10
National Science Board.....	11
Nuclear Regulatory Commission.....	12
Securities and Exchange Commission.....	13
Tennessee Valley Authority.....	14
Uniformed Services University of the Health Sciences.....	15

### 1

[M-254, Oct. 31, 1979]

#### CIVIL AERONAUTICS BOARD.

**TIME AND DATE:** 2:30 p.m., November 7, 1979.

**PLACE:** Room 1027, 1825 Connecticut Avenue, NW., Washington, D.C. 20428.

#### SUBJECT:

1. Ratification of items adopted by notation.
2. Docket 25472-C.O.D. shipments by air freight forwarders (OGC).
3. Docket 34650-Guidelines for Essential Air Service Determinations (OGC).
4. Docket 23371, Allegheny-Mohawk Merger Case, complaint of William Kingston and Peter Foster v. Allegheny Airlines, Inc. and Air Line Pilots Association, based on labor protective provisions in Board approval order of Allegheny-Mohawk merger (OGC).
5. Dockets 32519 and 33362 (*Application of Alaska International Air, Inc. and Former Large Irregular Air Service Investigation* (OGC).
6. Docket 35399, Western Air Lines, Inc. v. Alaska Airlines, Inc., discretionary review on petition, of BCP dismissal of Western complaint against Alaska for Section 403(b) rebate violation (Memo 9248, OGC).
7. Dockets 36367, 36487, 36504, 36731, 35885—Applications of PSA for Seattle/Portland-Fresno/Sacramento/Stockton/Reno/Las Vegas and Portland-San Francisco/Los Angeles/San Diego/San Jose/Burbank Long Beach authority; USAir for Seattle/Portland-Fresno/Las Vegas and Portland-San Diego/Burbank authority; Continental for Seattle/Portland-Fresno/Sacramento/Stockton/Reno/Las Vegas/Tucson and Portland-San Francisco/San Diego authority;

United for Seattle/Portland-Las Vegas authority; and Air California for Portland-Fresno authority (Memo 9249, BDA).

8. Docket 35656, *Nashville-West Show-Cause Proceeding*; Applications of Continental in Docket 35831, Delta in Docket 35835, Frontier in Docket 35870, Ozark in Docket 35859, Piedmont in Docket 35845, Republic (formerly North Central) in Docket 35842, United in Docket 35968, USAir (formerly Allegheny) in Docket 35849 and Western in Docket 35891 for authority (a) between and among Nashville, Memphis, Little Rock and Denver, (b) between and among Nashville, Memphis and Kansas City; and (c) between Nashville and Fort Smith/Tulsa/Oklahoma City/Amarillo/Colorado Springs; in whole or in part (Memo 8813-A, BDA).

9. Docket 36210, *Washington/Baltimore-Salt Lake City/Las Vegas/Phoenix Show-Cause Proceeding* (Memo 9009-A, BDA).

10. Docket 35745 *et al.*—Additional Great Lakes-Florida Service Show-Cause Proceeding (Memo 8469-D, BDA).

11. Docket 34410; Commuter replacement agreements between Allegheny Airlines and Ransome Air. Petitions for reconsideration of Orders 79-4-143 and 79-4-184 which approved the agreements with limited antitrust immunity (Memo 8613-D, BDA, OGC, BCP).

12. Dockets 35423, 35512 and 36254; Emerald Air, Inc.; Michigan Peninsula Airways, Ltd.; and United Parcel Service Co.—certification as section 418 all-cargo air carriers (BDA, OGC, BCP).

13. Docket 36856 and 36857-Altair Airline's notice and exemption request to suspend service at Myrtle Beach, South Carolina, effective November 15, 1979 (BDA, OCCR).

14. Docket 36243; Petition of Sky West Aviation for temporary and final subsidy rates pursuant to section 406 of the Federal Aviation Act for service to Cedar City, Utah, and Page, Arizona (BDA).

15. Docket 36418, Motion of Alaska Northwest Properties and Ronald F. Cosgrave for confidential treatment of information submitted pursuant to Order 79-8-100 (BCP).

16. Docket 32660, IATA agreements increasing proportional fares used to construct through international fares between U.S. interior points and points in Europe, the Middle East, Africa and the North/Central Pacific (BIA).

#### STATUS: Open.

**PERSON TO CONTACT:** Phyllis T. Kaylor, the Secretary (202) 673-5068.

[S-2161-79 Filed 11-1-79; 3:09 pm]

BILLING CODE 6320-01-M

### 2

#### COMMODITY FUTURES TRADING COMMISSION.

**TIME AND DATE:** 10:00 a.m., November 8, 1979.

**PLACE:** 2033 K Street NW., Washington, D.C., 5th Floor hearing room.

#### STATUS: Open.

**MATTERS TO BE CONSIDERED:** Proposed amendments to the minimum financial and related requirements and the Commission's regulations under the Freedom of Information Act and Government in the Sunshine Act.

**CONTACT PERSON FOR MORE INFORMATION:** Jane Stuckey, 254-6314.

[S-2149-79 Filed 10-31-79; 4:11 pm]

BILLING CODE 6351-01-M

### 3

#### COMMODITY FUTURES TRADING COMMISSION.

**TIME AND DATE:** 11:00 a.m., November 6, 1979.

**PLACE:** 2033 K Street, N.W., Washington, D.C., 5th floor hearing room.

#### STATUS: Closed.

**MATTERS TO BE CONSIDERED:** Enforcement matter/offer of settlement.

**CONTACT PERSON FOR MORE INFORMATION:** Jane Stuckey, 254-6314.

[S-2150-79 Filed 10-31-79; 4:11 pm]

BILLING CODE 6351-01-M

### 4

#### FEDERAL COMMUNICATIONS COMMISSION.

**TIME AND DATE:** 9:30 a.m., Tuesday, November 6, 1979.

**PLACE:** Room 856, 1919 M Street, N.W., Washington, D.C.

**STATUS:** Closed Commission Meeting following the Open Meeting.

#### MATTERS TO BE CONSIDERED:

##### Agenda, Item No., and Subject

Hearing—1—(1) Petition for reconsideration of the Commission's Decision and (2) petition for extension of time to file brief in the Homewood, Alabama, Television proceeding (Docket Nos. 15461 and 16761).  
Hearing—2—Petition for Special Relief in the Stereo Broadcasters, Inc., Garden City, New York, FM license renewal proceeding (Docket No. 20590).

General—1—Reorganization of Broadcast Bureau.

Complaints and Compliance—1—Results of the field investigation into the operation of Radio Station KNEA, Jonesboro, Arkansas.

This meeting may be continued the following workday to allow the Commission to complete appropriate action.

Additional information concerning this meeting may be obtained from Maureen Peratino, FCC Public Affairs Office, telephone number (202) 632-7260.

Issued: October 31, 1979.

[S-2157-79 Filed 11-1-79; 2:26 pm]

BILLING CODE 6712-01-M

5

# FEDERAL COMMUNICATIONS COMMISSION.

**TIME AND DATE:** 9:30 a.m., Tuesday, November 6, 1979.

**PLACE:** Room 856, 1919 M Street., N.W., Washington, D.C.

**STATUS:** Commission Open Meeting.

## MATTERS TO BE CONSIDERED:

### Agenda, Item No. and Subject

**General—1—Title:** UHF Television Receiver Noise Figure. **Summary:** Commission considers a proposed Order to amend § 15.68 of the Rules to clarify that certain Class I TV Devices (video tape recorders) with built-in TV tuners may have noise figures 4 dB higher than those required by § 15.68(a). The built-in TV tuner inherently increases the noise figure when measured at the antenna terminals and provision for this was inadvertently omitted when Docket No. 21010 was adopted.

**General—2—Title:** Petitions for reconsideration of the rules adopted in the First Report and Order, Docket No. 20846, governing interconnection of land mobile radio facilities authorized under Part 90 of the Commission's Rules and Regulations. **Summary:** Memorandum Opinion and Order disposing of the outstanding petitions for reconsideration of action taken by the Commission in the First Report and Order, Docket No. 20846 (Transmitter control requirements and Interconnection of Private Land Mobile Radio Stations). This document is largely interpretive in nature, responding to various questions relating to the intent of the rules adopted in the First Report and Order. Action is also taken on various requests for amendment of the adopted rules.

**General—3—Second Report and Order in Docket No. 20917, an inquiry in the Commission's operator licensing program. Amendment of the rules to authorize the holder of any class of commercial operator license to perform routine operating duties at TV stations and AM stations with critical directional antenna systems; and to authorize less than full-time employment of a first-class radiotelephone license holder, acting as "chief" operator, in charge of technical maintenance at stations.**

**Private Radio—1—Title:** Proposed CB treaty between the United States and Canada to delete permit requirement; Order to permit cross-border communications with Canadian General Radio Service licensees. **Summary:** The Commission will consider whether to forward to the State Department a proposed CB treaty between the United States and Canada delete the requirement that United States CB and

Canadian GRS licensees obtain a permit before operating their radio stations in the host country. Further, the Commission will consider whether or not to adopt an Order amending Part 95 of its Rules to permit cross-border communications between Citizens Band and Canadian General Radio Service licensees.

**Private Radio—2—Title:** Rulemaking to aid in pollution prevention by broadening the permissible communications aboard vessels involved in large oil transfer operations. (Maritime mobile service.) **Summary:** The FCC will consider whether to adopt a Report and Order (PR Docket No. 78-324) that revises Section 83.815(a)(2) of the FCC Rules. That section lists the points between which communications, using on-board frequencies, may be carried out. The expanded usage would facilitate compliance with increased precautions against spillage, released by the United States Coast Guard. The FCC proposed by this revision in a Notice of Proposed Rulemaking (FCC 78-701) released October 12, 1978.

**Private Radio—3—Title:** Notice of Proposed Rulemaking to permit coast stations on the Great Lakes to broadcast weather information on Channel 17 (156.850 MHz). **Summary:** The Commission will consider permitting coast stations on the Great Lakes to broadcast weather information to ship stations on Channel 17 (156.850 MHz) by both voice and facsimile, F3 and F4 emission respectively. This proposal, if adopted, will alleviate the problems experienced by both ship and coast stations where the lengthy weather broadcasts interfere with the public correspondence service.

**Common Carrier—1—Title:** Petition by A.T. & T. for partial reconsideration of Commission Order which found A.T. & T.'s tariff revisions, which withdrew 1.544 Mbps interstate intra-DSA service, to be unlawful (Docket 2069). **Summary:** This is a petition by A.T. & T. asking the Commission to reconsider that part of its prior Order which found A.T. & T.'s tariff revisions to its Data Digital Service to be unlawful. The Commission found these revisions unlawful because they withdrew the offering of interstate 1.544 Mbps service in certain areas and A.T. & T. had not obtained prior approval from the Commission to withdraw such service. A.T. & T. asks the Commission to reconsider its holding that prior approval is required before withdrawing a service that is only offered, but never actually provided, to any customers.

**Common Carrier—2—Title:** Petition by Western Union for Order to Require the Bell System to Continue to Provide Group/Supergroup Facilities. **Summary:** This is a petition by Western Union requesting the Commission to order the Bell Companies to continue providing certain group and supergroup wideband channel facilities which it claims it previously received under contracts. These contracts were replaced with the present tariff structure in October 1978. Western Union asks the Commission to consider whether Bell needed prior approval from the

Commission for this action and whether Bell has an obligation to provide these facilities on request.

**Common Carrier—3—Title:** *Department of Defense (DoD) v. Chesapeake and Potomac Telephone Companies (C&P)*; File No. TS 4-76. **Summary:** On May 14, 1979, the Commission denied petitions for reconsideration of its original order in this matter. DoD has filed a petition for further reconsideration. The issue raised is whether such a petition is acceptable for consideration.

**Common Carrier—4—Title:** Amendment of Sections 1.773, 61.32 and 61.58 of the Commission's Rules to provide adequate and timely availability of tariff filings to the public. Docket No. 20698. *See, Notice of Inquiry and Proposed Rulemaking*, 57 FCC 2d 1148 (1978). **Summary:** This item considers the modification of certain sections of Part 61 which concern the procedures for filing tariffs.

**Common Carrier—5—Title:** Dial-A-Page, Inc. **Summary:** The Commission has received a request from Radiocall Paging Service that the FCC Review Board review, reverse, and set aside the Common Carrier Bureau's grant, made pursuant to delegated authority, of an application filed by Dial-A-Page, Inc. to provide paging service on frequency 43.22 MHz in the Domestic Public Land Mobile Radio Service at Oklahoma City, Oklahoma (File No. 20408-CD-P-79). The issue to be considered is whether the Review Board has jurisdiction to review the case and, if not, whether the pleading is a timely filed application for review.

**Common Carrier—6—Title:** CC Docket No. 78-331, Amendment of Part 68 of the Rules to provide for certain exceptions required to protect the national defense and security as well as other appropriate exceptions. **Summary:** The issues before the Commission are: (1) Whether an exception to the terminal equipment registration requirements of Part 68 of the Rules should be granted to the Department of Defense and other governmental agencies in instances where compliance would comprise the national defense and security. (2) Whether an exception to Part 68 should be granted to those who historically have benefitted from exceptions to tariff prohibitions against interconnection of customer provided systems and equipment.

**Cable Television—1—Total Television of Amarillo, CSR-1459. In Total Television of Amarillo (Amarillo, Texas), Mimeo No. 15810 (released March 29, 1979), the Chief of the Cable Television Bureau denied Total Television's request to add three distant independent signals, because their carriage was inconsistent with Section 76.63 of the Commission's Rules. However, Total Television requests that the Commission reverse this decision, and in support of this request Total Television has submitted an impact formula which predicts that if the Commission authorized the addition of the three signals requested by both cable systems located within thirty-five miles of the three network affiliated stations licensed to the Amarillo, Texas major television market (No. 95), the**

total cumulative impact on each station would be less than two percent.

**Cable Television—2—***Truth Publishing Company, Inc.*, Elkhart, Indiana, CSR-1198. Until recent sales, Truth owned a television station and a one-third interest in a cable system (Valley Cablevision) which serves communities within the station's Grade B contour. The other two-thirds of Cablevision was owned equally by two other local television stations. When Truth sold its television station in 1975, it received a tax certificate from the Commission since the sale broke up Truth's own cross-ownership situation. When the three broadcasters sold Cablevision in 1977, tax certificates were issued to the other two broadcasters as well, because that sale broke up their cross-ownership situations. But the Commission denied Truth's request for a second tax certificate. It is this denial which is the subject of consideration here.

**Assignment and Transfer—1—**Subject: (1) Applications for consent to the assignment of license and/or the transfer of control to Viacom Broadcasting, Inc. (VBI) of certain stations licensed to Sonderling Broadcasting Co. (SBC). (2) Applications for the assignment of license and the transfer of control of stations WORA and WBMX(FM), Oak Park, Illinois, from SBC to Sonderling Radio Corporation. (3) Applications for the voluntary assignment of license of station WOL, Washington, D.C. from SBC to WOL, Inc. Summary: The above transactions involve the proposed merger of Sonderling Broadcasting Co. (SBC) into Viacom International, Inc. (Viacom). SBC proposes to transfer or assign all of its stations to a subsidiary of Viacom with the exceptions of station WOL, Washington, D.C., whose license renewal application has been designated for hearing, and stations WORA and WBMX(FM), Oak Park, Illinois, which will be retained by principals of SBC.

**Renewal—1—**Title: Composite week for use in (1) preparing the Annual Programming Report (FCC Form 303-A to be filed by February 1, 1980; (2) analyzing past program performance of commercial television licensees whose licenses expire on June 1, and thereafter during the calendar year 1980; and (3) preparing television assignment of license and transfer of control applications filed on or after January 1, 1980.

**Renewal—2—**Title: In Re Applications for Renewal of Licenses for Stations WAGA-TV, WSB-TV and WXIA-TV, Atlanta, Georgia. Subject: Henry M. Henderson filed an informal objection to the subject stations' license renewal applications based on the disparaging way in which the stations' programming portrays eyeglasses and eyeglass wearers. The Broadcast Bureau denied the informal objection, and the Commission subsequently affirmed the Bureau's decision. Complainant has now filed a petition for reconsideration of the Commission's decision.

**Renewal—3—**Title: KCCT, Inc., application for renewal of license for station KCCT-AM, Corpus Christi, Texas. Summary: Station KCCT was granted a short-term

renewal which expired on August 1, 1979; it also was penalized with a forfeiture in 1978. These penalties were imposed for keeping logs inappropriately and using the facility in an anti-competitive manner in a non-broadcast business. This Agenda Item considers data submitted by licensee in support of its request for a full term renewal.

**Aural—1—**Title: Memorandum Opinion and Order in re applications of J-Star Broadcasting Company, Inc. (File No. BP-20330) and Heritage Broadcasting Company, Inc. (File No. BP-20583) for new AM stations in Murray, Kentucky and Paris, Tennessee, respectively. Summary: The FCC considers the above mutually exclusive applications for new AM stations and an agreement providing for the dismissal of one and grant of the other.

**Aural—2—**Title: Memorandum Opinion and Order in re application of Hall Broadcasting Co., Inc. (BPH-10,663). Summary: The FCC considers its grant of the above application to change transmitter location and increase antenna height of Station WYD-FM, Palatka, Florida, in the light of the parties' failure to consummate a companion assignment of license of the station.

**Aural—3—**Title: Memorandum Opinion and Order in re applications of Wuenschel Broadcasting Co., Inc. (File No. BPH-780822AA), Brasher Broadcasting Co. (File No. BPH-790117AA) and William T. Brooks d/b/a Manzano Broadcasting (File No. BPH-790112AF). Summary: The FCC considers a request for expedited processing of the above three applications for a new FM station filed by Wuenschel Broadcasting Co., Inc.

**Aural—4—**Title: Memorandum Opinion and Order in re application of Tucson FM Broadcasting Corporation (File No. BPH-10347). Summary: The FCC considers a final environmental impact statement prepared by the Broadcast Bureau relating to the above application.

**Aural—5—**Title: Memorandum Opinion and Order in re applications of Tal-Flo Broadcasters, Inc. (BP-20,317) and Bluefield Broadcasting Co., Inc. (BP-21,037) for new AM stations in Banner Elk, North Carolina, and Bluefield, Virginia, respectively. Summary: The Commission considers the above mutually exclusive applications and a joint request for approval of an agreement contemplating dismissal of the Tal-Flo Broadcasting application.

**Television—1—**Subject: Application of New Jersey Public Broadcasting Authority for a construction permit for changes in the facilities of Station WNJB(TV), channel 58, New Brunswick, New Jersey (File Number BPET-600). Summary: Applicant proposes to locate the transmitter of Station WNJB(TV) on the World Trade Center in New York, New York. Operating as proposed, the station would be in violation of Commission rules requiring minimum mileage separations between television transmitting facilities. The question before the Commission is whether to waive its Rules to allow applicant to relocate its transmitter.

**Television—2—**Title: Application of King Communications, Inc. for additional time

within which to construct Station WGSE(TV), channel 43, Myrtle Beach, SC. Summary: Permittee seeks additional time within which to construct UHF TV station authorized in 1977. Broadcast Bureau cancelled CP and deleted call sign and reinstatement is requested. Question is whether to reinstate and designate for oral argument.

**Broadcast—1—**Subject: Notice of Proposed Rulemaking to amend Section 73.653 of the Rules concerning operation of visual and aural transmitters of TV stations. Summary: Amendment of the Rule which provides that the aural and visual transmitters of a TV station shall not be operated separately to present different and unrelated program material, to provide that, during early morning hours when the station normally would otherwise be off the air, visual informational programming (news, weather, financial, sports may be presented with either audio background music or no audio.

This meeting may be continued the following workday to allow the Commission to complete appropriate action.

Additional information concerning this meeting may be obtained from Maureen Peratino, FCC Public Affairs Office, telephone number (202) 632-7260.

Issued: October 31, 1979.

[S-2158-79 Filed 11-1-79; 2:28 pm]

BILLING CODE 6712-01-M

## 6

### FEDERAL ELECTION COMMISSION. FEDERAL REGISTER NO. 2134.

PREVIOUSLY ANNOUNCED DATE AND TIME:  
Thursday, November 8, 1979, at 10:00 a.m.

CHANGE IN MEETING: The following items have been added to the agenda.

1. Draft AO 1979-57: Cooper T. Holt, Director, VFW-Political Action Committee.
2. Final audit for the National Federation of Republican Women and the National Black Republican Council.

PERSON TO CONTACT FOR INFORMATION:  
Mr. Fred Eiland, Public Information Officer, telephone 202-523-4065.

Marjorie W. Emmons,  
Secretary to the Commission.

[S-2153-79 Filed 11-1-79; 10:12 am]

BILLING CODE 6715-01-M

## 7

### FEDERAL MARITIME COMMISSION.

TIME AND DATE: November 7, 1979, 10:00 a.m.

PLACE: Room 12126, 1110 L Street, N.W., Washington, D.C. 20573.

STATUS: Parts of the meeting will be open to the public. The rest of the meeting will be closed to the public.

**MATTERS TO BE CONSIDERED:****Portions Open to the Public**

1. Monthly Report of the Managing Director of actions pursuant to delegated authority.
2. Agreement No. 134-40: Modification of the Gulf/Mediterranean Ports Conference to revise its self-policing provisions.
3. Agreement No. 8660-10: Modification of the Latin America/Pacific Coast Steamship Conference to revise its self-policing provisions and related modifications.
4. Backlog of Informal Dockets.
5. Dockets Nos. 78-27, 79-42, 79-43: *Merck, Sharp & Dohme International v. Kawasaki Kisen Kaisha, Ltd., O.S.K. Lines, Ltd., and Japan Line, Ltd.*—Further consideration of the record.

**Portion Closed to the Public**

1. Docket No. 79-8: Puerto Rico Maritime Authority and Trailer Marine Transport Corporation Proposed Reduced Rates—Further consideration of the record.

**CONTACT PERSON FOR MORE INFORMATION:** Francis C. Hurney, Secretary, (202) 523-5725.

[S-2151-79 Filed 10-31-79; 4:28 pm]

**BILLING CODE 6730-01-M**

8

**FEDERAL RESERVE SYSTEM.****"FEDERAL REGISTER" CITATION OF**

**PREVIOUS ANNOUNCEMENT:** 44 FR 61727, October 26, 1979.

**PREVIOUSLY ANNOUNCED TIME AND DATE OF THE MEETING:** 10:45 a.m., Wednesday, October 31, 1979.

**CHANGES IN THE MEETING:** Determination by the board to close an item previously announced as open: Proposed statement to be presented to the Senate Committee on Banking, Housing, and Urban Affairs regarding abuses involving federally guaranteed securities.

Following the determination to close the item, the Board considered the matter in a closed meeting on Thursday, November 1, 1979, at 10:30 a.m.

**CONTACT PERSON FOR MORE INFORMATION:** Mr. Joseph R. Coyne, Assistant to the Board; (202) 452-3204.

Dated: November 1, 1979.

Griffith L. Garwood,  
*Deputy Secretary of the Board.*

[S-2160-79 Filed 11-1-79; 2:36 pm]

**BILLING CODE 6210-01-M**

9

**LEGAL SERVICES CORPORATION:**  
(Committee on Provision of Legal Services).

**TIME AND DATE:** 10:00 a.m.-12:00 p.m.; Monday, November 12, 1979.

**PLACE:** Legal Services Corporation, 11th

Floor Conference Room, 733 15th Street, N.W., Washington, D.C.

**STATUS:** Open Meeting.

**MATTERS TO BE CONSIDERED:**

1. Adoption of Agenda.
2. Approval of Minutes of September 6, 1979, Meeting.
3. Report on Compliance by local Boards of Directors with 45 C.F.R. Section 1607.3(d) (One-Third Client Membership).
4. Report on Compliance by local Boards of Directors with 45 C.F.R. Section 1620 (Priority Setting).
5. Summer Intern Program.
6. Status Report on Expansion in Fiscal Years 1978, 1979, and 1980.
7. Status Report on Reginald Heber Smith Program.
8. Report on Delivery Systems Study.
9. Report on Translation of Materials.
10. President's Report.
11. Other Business.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Dellanor Young, Office of the President, telephone (202) 272-4040.

Issued: November 1, 1979.

Dan J. Bradley,  
*President.*

[S-2162-79 Filed 11-1-79; 3:40 pm]

**BILLING CODE 6820-35-M**

10

**LEGAL SERVICES CORPORATION:**

(Committee on Appropriations and Audit).

**TIME AND DATE:** 12:00 p.m.-5:30 p.m.; Monday, November 12, 1979.

**PLACE:** Legal Services Corporation, 11th Floor Conference Room, 733 15th Street, N.W., Washington, D.C.

**STATUS:** Open Meeting.

**MATTERS TO BE CONSIDERED:**

1. Adoption of Agenda.
2. Approval of Minutes of September 6, 1979 Meeting.
3. Preliminary Final Report on 1979 Expenditures.
4. Status of the Corporation's 1979 Annual Audit.
5. Review of the Preliminary Consolidated Operating Budget for Fiscal Year 1980.
6. Allocation of One-Time Funds During Fiscal Year 1980.
7. Review of the Draft Budget Request for Fiscal Year 1981.
8. Report on Status of Investment Income.
9. Other Business.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Dellanor Young, Office of the President, telephone (202) 272-4040.

Issued: October 31, 1979.

Dan J. Bradley,  
*President.*

[S-2163-79 Filed 11-1-79; 3:40 pm]

**BILLING CODE 6820-35-M**

11

**NATIONAL SCIENCE BOARD.**

**DATE AND TIME:** November 15, 1979; 11:00 a.m., Closed Session; November 16, 1979; 9:00 a.m., Open Session.

Special note should be taken that the open portion of the meeting will take place on Friday, rather than Thursday.

**PLACE:** National Science Foundation, Room 540, 1800 G Street NW., Washington, D.C.

**STATUS:** Parts of this meeting will be open to the public. The rest of the meeting will be closed to the public.

**MATTERS TO BE CONSIDERED AT THE OPEN SESSION:**

1. Minutes—Open Session—210th Meeting.
2. Chairman's Report.
3. Director's Report:
  - a. Report on Grant and Contract Activity—10/18-11/14/79,
  - b. Organizational and Staff Changes,
  - c. Congressional and Legislative Matters,
  - d. NSF Budget for Fiscal Year 1980.
4. Board Committees—Reports on Meetings:
  - a. Executive Committee,
  - b. Planning and Policy Committee,
  - c. Programs Committee,
  - d. Committee on Minorities and Women in Science,
  - e. Committee on Role of NSF in Basic Research,
  - f. Committee on Thirteenth NSB Report,
  - g. Committee on Twelfth NSB Report,
  - h. Ad Hoc Committee on Big and Little Science,
  - i. Ad Hoc Committee on Deep Sea and Ocean Margin Drilling Programs,
  - j. Ad Hoc Committee on NSF Act Review.
5. NSF Advisory Groups and Other Events:
  - a. Reports on Meetings,
  - b. Representation at Future Events,
6. Program Review—Information Science and Technology.
7. Grants, Contracts, and Programs—Information Item: Biological, Behavioral, and Social Sciences—Social and Economic Science.
8. Review of NSF Act.
9. Other Business.
10. Next Meetings: National Science Board, 212th Meeting, January 17-18, 1980.

**MATTERS TO BE CONSIDERED AT THE CLOSED SESSION:**

- A. Minutes—Closed Session—210th Meeting.
- B. Grants, Contracts, and Programs.
- C. NSB and NSF Staff Nominees.
- D. NSB Annual Reports.
- E. NSF Budgets for Fiscal Year 1981 and Subsequent Years.
- F. NSB Proposed Report on Revision of National Science Foundation Act.

**CONTACT PERSON FOR MORE**

**INFORMATION:** Miss Vernice Anderson, Executive Secretary, (202)-632-5840.

[S-2152-79 Filed 11-1-79; 10:12 am]

**BILLING CODE 7555-01-M**



12

**NUCLEAR REGULATORY COMMISSION.****TIME AND DATE:** Tuesday, November 6, 1979.**PLACE:** Commissioners' Conference Room, 1717 H Street NW., Washington, D.C.**STATUS:** Closed.**MATTERS TO BE CONSIDERED:***Tuesday, November 6: 1:30 p.m.*

1. Preliminary Briefing on Inventory of NFS-Erwin (approximately 1½ hours, closed—exemption 1).

2. Discussion of Personnel Matter (approximately 1½ hours, closed—exemption 6).

**CONTACT PERSON FOR MORE INFORMATION:** Walter Magee (202) 634-1410.

Dated: October 30, 1979.

Roger M. Tweed,  
*Office of the Secretary.*

[S-2159-79 Filed 11-1-79; 2:28 pm]

BILLING CODE 7590-01-M

13

**SECURITIES AND EXCHANGE COMMISSION.****"FEDERAL REGISTER" CITATION OF PREVIOUS ANNOUNCEMENT:** 44 FR 61305, October 24, 1979.**STATUS:** Closed Meeting.**PLACE:** Room 825, 500 North Capitol Street, Washington, D.C.**DATE PREVIOUSLY ANNOUNCED:** Monday, October 22, 1979.**CHANGES IN THE MEETING:** Additional item.

The following additional items will be considered at a closed meeting scheduled for Thursday, November 1, 1979, at 10:00 a.m.

Consideration of amicus participation.  
Settlement of injunctive action.

Commissioners Loomis, Evans, Pollack, and Karmel determined that Commission business required the above changes and that no earlier notice thereof was possible.

At times changes in commission priorities require alterations in the scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted, or postponed, please contact: Mike Rogan at (202) 272-2091.

October 31, 1979.

[S-2154-79 Filed 11-1-79; 10:43 am]

BILLING CODE 8010-01-M

14

**[Meeting No. 1230]****TENNESSEE VALLEY AUTHORITY.****TIME AND DATE:** 9:30 a.m., Thursday, November 8, 1979.**PLACE:** Somerville Road Elementary School, Decatur, Alabama.**STATUS:** Open.**MATTERS FOR ACTION:****Old Business**

1. Project Authorization No. 3469—

Rehabilitation of Ocoee No. 2 Hydro Plant.

2. Lease agreement with Roland E. Knapp for operation of a commercial recreation area (Cottonport Marina) affecting 15.8 acres of Chickamauga Reservoir land in Meigs County, Tennessee—Tract XTCR-167L.

**New Business****Personnel Action**1. Change of status for L. Allen Wilson from General Construction Superintendent, Division of Construction, Office of Engineering Design and Construction, to Director, Labor Relations Staff, Office of Management Services, Knoxville, Tennessee.<sup>1</sup>**Consulting and Personal Services Contract**

1. Renewal of consulting contract with Dr. Edward C. Raney, Ithaca, New York, for continued fishery studies, requested by the Office of Natural Resources.

**Purchase Awards**

1. Reg. No. 164853—Purchase of nuclear liability insurance for Bellefonte Nuclear Plant.

2. Reg. No. 119990—Power circuit breakers for various 500-kV substations.

3. Reg. No. 825032—Radioactive waste volume reduction and solidification system for Yellow Creek Nuclear Plant Units 1 and 2.

**Power Items**

1. Lease and amendatory agreement with Benton County, Tennessee, covering arrangements for single-point 161-kV service in the Camden area.

2. Agreement with Powell Valley Electric Cooperative, Jonesville, Virginia, amending power contract to permit distributor to include additional amounts in retail bills to its customers to facilitate distributor's payment of Virginia Annual State Franchise Tax and Virginia State Special Revenue Tax.

3. Agreement with city of Lawrenceburg, Tennessee, amending power contract to establish a 28-kV delivery point at TVA's Lawrenceburg 161-kV substation.

4. Lease and amendatory agreement with the city of Athens, Tennessee, covering arrangements for consolidated 69-kV delivery at TVA's Athens 161-kV substation.

**Real Property Transaction**

1. Filing of condemnation suits.

**Unclassified**

1. New TVA policy code on adjustment contracts relating to highway, railroad, and bridge facilities affected by TVA projects.

2. Letter agreement with Hawkins County, Tennessee, covering arrangements for renovation of the Kenner House in Rogersville to provide for space for certain

<sup>1</sup>This item was approved by individual Board members. This would give formal ratification to the Board's action.

law enforcement activities as part of the impact mitigation program for Phipps Bend Nuclear Plant.

3. Supplemental agreement TVA, Tennessee Department of Education, and local school systems in the Hartsville Nuclear Plants project area to mitigate impacts on school systems caused by construction of the project.

Dated: November 1, 1979.

**CONTACT PERSON FOR MORE INFORMATION:** Lee C. Sheppard, Acting Director of Information, or a member of his staff can respond to requests for information about this meeting. Call (615) 632-3257, Knoxville, Tennessee. Information is also available at TVA's Washington Office (202) 245-0101.

[S-2153-79 Filed 11-1-79; 11:22 am]

BILLING CODE 8120-01-M

15

**UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES.****TIME AND DATE:** November 13, 1979, 8:00 a.m.**PLACE:** Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20014.**STATUS:** Open.**MATTERS TO BE CONSIDERED:**

Meeting—Educational Affairs Committee (8:00 a.m.)

(1) Faculty Appointments; (2) Report—Admissions Committee; (3) Report—Graduate Program Update.

Meeting—Gifts Committee (8:00 a.m.)

Discussion—Policy on Memorials.

Meeting—Board of Regents (9:00 a.m.)

(1) Approval of Minutes, 10 September 1979; (2) Report—Educational Affairs Committee; (3) Report—Gifts Committee; (4) Report—Acting President; (5) Report—Dean, School of Medicine; (6) Report—Assistant Dean for Administration—Construction Update; (7) Report—Director, Resource Management—Budget—'79 Final Report; '80, '81; (8) Departmental Program Review—Robert J.T. Joy, COL, MC, USA, Chairman, Military Medicine and History.

New Business.

**SCHEDULED MEETINGS:** January 14, 1979.

**CONTACT PERSON FOR MORE INFORMATION:** Frank M. Reynolds, Executive Secretary of the Board, 202-295-2111.

Dated: 1 November 1979.

H. E. Lofdahl,

*Deputy Director, Correspondence and Directives, Washington Headquarters Services, Department of Defense.*

[S-2156-79 Filed 11-1-79; 11:59 am]

BILLING CODE 3810-70-M





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**Monday**  
**November 5, 1979**

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**Part II**

**Department of  
Transportation**

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**Coast Guard**

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**Notifications of Arrivals, Departures,  
Hazardous Conditions, and Certain  
Dangerous Cargoes**

## DEPARTMENT OF TRANSPORTATION

## Coast Guard

## 33 CFR Parts 124, 126, 161, and 164

## [CGD 75-238]

## Notifications of Arrivals, Departures, Hazardous Conditions, and Certain Dangerous Cargoes

AGENCY: Coast Guard, DOT.

ACTION: Interim rule with request for comments.

**SUMMARY:** This document modifies the notification requirements for vessels concerning arrivals, departures, hazardous conditions and certain dangerous cargoes to ensure vessel safety as well as security protection. Coast Guard Captains of the Port currently receive inadequate information concerning vessel movement within their respective zones. Requiring these vessel movement notifications for specific vessel conditions and vessels carrying "certain dangerous cargo" will provide the Captain of the Port with improved information on which to base decisions regarding management of vessel traffic. Since the rule includes an expansion of an area of applicability in the Mississippi River, and some changes to reporting requirements, additional comments from the public are invited.

**DATES:** comments must be received before December 20, 1979.

**EFFECTIVE DATE:** December 5, 1979.

**ADDRESSES:** Comments on the expanded applicability and the additional reporting requirement should be submitted to the Commandant (G-CMC/TP24) (CGD 75-238), U.S. Coast Guard, Washington, D.C. 20590. All comments and copies of the final evaluation are available for examination at the Marine Safety Council (G-CMC/TP24), Room 2418, U.S. Coast Guard Headquarters, Trans Point Building, 2100 Second St. S.W., Washington, D.C. 20590.

**FOR FURTHER INFORMATION CONTACT:** Lieutenant David G. Dickman, Office of Marine Environment and Systems, U.S. Coast Guard Headquarters Washington, D.C. 20590, 202-426-1927.

**SUPPLEMENTARY INFORMATION:** On June 15, 1978, the Coast Guard published a Notice of Proposed Rulemaking (NPRM) (43 FR 25958) concerning these amendments. A correction was published in the July 27, 1978 issue of the Federal Register (43 FR 32440). A supplemental notice was published in the September 25, 1978 issue (43 FR 43330) which extended the deadline for

submission of written comments to November 15, 1978 and provided for two public hearings. The first public hearing was in Washington, D.C. on October 12, 1978 and the second in Houston, Texas on October 20, 1978. Ninety written comments were received.

Commenters were primarily from the offshore exploration industry and the inland barge industry. Other comments were received from private companies, industry associations and Federal agencies. Nine persons presented oral comments at the public hearings.

**Drafting Information**

The principal persons involved in drafting this rule are: Lieutenant Commander Edward H. Bonekemper, III and Lieutenant David G. Dickman, Project Managers, Office of Marine Environment and Systems, and Mr. Stanley M. Colby, Project Attorney, Office of the Chief Counsel.

**Discussion of Comments**

Most of the comments received stated that the proposed regulations were economically burdensome and that the costs and number of notifications anticipated under the proposed regulations would be considerably more than the 84,980 notifications, at a cost of approximately \$424,900.00, estimated in the proposal. Several commenters also recommended that a second survey of Coast Guard units should be conducted to ascertain the accuracy of the figures and to get a more accurate view of present and future needs regarding the proposed regulation, both for the Coast Guard and for industry. A second survey was conducted and, because of the results of the second survey and the comments received on the proposal, the Coast Guard has changed the proposal by reducing the number of notifications required. Vessels carrying "certain dangerous cargoes" (defined in this document) will continue to be required to report arrival and departure information. However, the proposed list of "certain dangerous cargoes" has been reduced by deleting the 46 CFR Subchapter D cargoes and the Environmental Protection Agency (EPA) designated "hazardous substances". Only vessels carrying either "cargoes of particular hazard" or 46 CFR Part 153 cargoes in bulk are now required to report arrival and departure information under this provision. These cargoes were retained because they all present unique and severe reactivity or toxicity hazards in addition to the fact that some are also flammable. Also, the Coast Guard has exempted all vessels under 1600 gross tons (GRT) from the general reporting requirements. The proposal

exempted only fishing vessels under 1600 GRT. This change will also reduce the number of required reporting vessels.

The barge industry in particular submitted a number of comments stating that the notification requirements for barges were impractical. Barge companies frequently do not know where their barges will be from one day to the next and do not know what cargoes will be carried until the barge begins loading. In order to ease the reporting requirement on the barge industry and make the requirements more practical for barges, two changes were made in the proposal. First, a waiver provision was added to allow a Captain of the Port discretion where application of this rule is "impractical or unnecessary for purposes of safety, environmental protection or national security." Second, under the proposal, a barge was required to report arrival and departure 24 hours in advance when carrying "certain dangerous cargoes". The proposal is changed by having the barge report 4 hours in advance of arrival and departure when carrying "certain dangerous cargoes".

Many commenters stated that the Coast Guard had not established a justifiable need for the information required by the proposed regulation or explained how such information would be used. The Coast Guard disagrees. It was explained in the preamble to the proposed regulation that the Ports and Waterways Safety Act gave the Coast Guard vessel traffic management authority. Each Captain of the Port (COTP) has been delegated broad authority to manage vessel traffic (33 CFR Part 160) and to establish safety zones (33 CFR Part 165) for protection of the port and the marine environment. In order to implement this authority, it is necessary that the COTP be kept as up-to-date as possible as to what vessels and cargoes are transiting the COTP zone. The Coast Guard believes that the information required in this final rule is the minimum a COTP would need in order to effectively manage vessel traffic. By knowing which vessels are in the zone, which are operating under "hazardous conditions" (potentially dangerous situations) and which are transporting "certain dangerous cargo", the COTP can plan possible response activities and also prevent intensification of emergency situations by directing the anchoring, mooring or movement of vessels, establishing safety zones, controlling vessel traffic, or taking whatever other actions are necessary to minimize damage to or

destruction of the port or the marine environment.

A number of commenters stated that reports that have to be filed in accordance with other regulations sufficiently promote safety and that the proposed regulations should be combined with other reports required by the Coast Guard where possible. Specifically mentioned were vessel traffic service (VTS) reports (33 CFR Part 161), reports of marine casualties (46 CFR 4.05), and reports of transfer of dangerous cargoes (33 CFR 126.27(b)). The Coast Guard reviewed the possibility of combining the reports but found this to be impractical for a variety of reasons. Because of the limited scope of the VTS reports, they are not considered sufficient to accomplish the vessel traffic management functions of these regulations. The report of marine casualty (46 CFR Subpart 4.05) is a more detailed after-the-fact report designed to determine the cause of the casualty. On the other hand, the report of "hazardous conditions" required in this rule informs the COTP not only of after-the-fact incidents but also of potential problems which the COTP may avert or minimize. The report of transfer of dangerous cargoes at waterfront facilities (33 CFR 126.27(b)) does not give the COTP timely information regarding vessel presence in, or transits through, the port. Information is needed by the COTP as to when vessels are present in or transiting the zone, not just when the actual cargo transfer will be taking place.

Several commenters stated that the proposed regulations were not written in accordance with Executive Order (EO) 12044, "Improving Government Regulations". They stated that the proposal should have been designated "significant" under the guidelines of EO 12044. The Coast Guard disagrees with this comment. These rules are essentially an expansion of existing regulations currently in 33 CFR Part 124 in order to incorporate more safety considerations. In accordance with the Department of Transportation's "Regulatory Policies and Procedures" issued pursuant to EO 12044 (44 FR 11034 of February 26, 1979), the Coast Guard considered the following factors and found this regulation to be nonsignificant in nature:

(1) Relatively few individuals, businesses, and organizations, are affected, particularly after the reduction in scope of these rules from those originally proposed.

(2) The compliance and reporting requirements involved are similar to current requirements. The number of reports required is only moderately

increased, particularly since the scope of hazardous materials has been narrowed.

(3) Direct and indirect effects of the regulation, including the effect on competition, are minimal. Some commenters stated that the mandatory compliance of the marine industry with the proposed regulations would produce unfair modal competition. These commenters felt that the marine industry, although being the transportation mode with the best safety record, was being unduly regulated by having the reporting requirements apply to it without having similar requirements apply to other transportation modes, particularly railroads. At the present time, it is impractical, if not impossible, for the railroads to report such information. The marine industry has the capability since most of the industry has been reporting arrival information under 33 CFR Part 124. Also, there is a considerable difference between the marine industry and the railroads as to size of shipments. The marine industry carries much greater volumes of materials per vessel. The Coast Guard does not find this regulation to be a hindrance to the marine industry in modal competition but promulgates it as another step toward producing an even safer mode of transportation than presently exists.

(4) The relationship of the regulations to those of other programs and agencies is not a factor because no other agency has similar requirements for water traffic.

Many commenters stated that in their opinion the proposed regulations did not comply with EO 12044 because they were ambiguous and written without consulting the affected industries. The Coast Guard has made changes to the final rule so that the layman will find them more readable and understandable. However, the Coast Guard disagrees with the comment that these regulations were written without consulting the affected industries. Ample time and opportunity were given industry for input into these regulations by allowing a substantial comment period of four and a half months on the NPRM and holding two public hearings.

Several commenters felt that if vessels on the Western Rivers were excepted from compliance with the arrival and departure notification requirements of these regulations, then vessels on the Intercoastal Waterway (ICW) should also be excepted. In the same vein, some commenters stated that if any barge must comply with any of the notification requirements of these regulations, all barges, whether on the Western Rivers or not, should comply.

While arrival and departure information on barges carrying a "certain dangerous cargo" is desirable for coastal and Great Lakes COTPs, this information is not as vital in inland waterway transportation. The geographical confines of the inland waterway itself are a factor that physically controls traffic. The additional restrictions placed upon vessels by the presence of locks and dams further control vessel traffic. Vessel traffic on the Western Rivers will therefore continue. Upstream Town Highway No. to be excepted from all requirements in this rule except those concerning hazardous conditions. Reporting of hazardous conditions will not be excepted because these are conditions that require or may require response by the COTP, and the early notification of the existence of such conditions will allow the COTP to plan response actions. However, the Coast Guard will further study the application of all these requirements to the Western Rivers.

Although the factors controlling vessel traffic on the Western Rivers also control vessel traffic on the ICW, there is one overriding difference that causes the Coast Guard to require notification of arrival and departure by barges carrying a "certain dangerous cargo" on the ICW. This difference is that the ICW intersects a number of major coastal ports. In order for the COTP of a coastal port to have full knowledge of the potential vessel traffic problems in the port, all types of vessel traffic should be required to report. Since major coastal ports cover a wide geographic area and provide for many types of vessels, both foreign and domestic, continuous, up-to-date arrival and departure information for barges carrying a "certain dangerous cargo" on the ICW is a very valuable traffic management tool for COTPs of those ports that the ICW intersects.

In accordance with the policy that all vessels in all major coastal ports be required to report arrival and departure information if they are carrying a "certain dangerous cargo", the exception for vessels on the Western Rivers has been amended by changing the applicability from the proposed Huey P. Long Bridge to Mile 235 AHP (distance above Head of Passes) so that the major coastal port of Baton Rouge is added to the areas requiring reports. Because this is a substantial departure from the area of applicability proposed in the Notice, comments from the public will be accepted on this change. The rule may be changed in light of the comments received and any change will be published in the Federal Register.

A reporting requirement has been changed for vessels entering ports or places of destination on the Great Lakes. Under the proposal (§ 161.9), vessels coming from the high seas and having a port or place of destination in the U.S. on the Great Lakes had to report, for their first port or place of destination, to the Ninth Coast Guard District. This has been changed to require reporting to the COTP of the port or place of destination. Both the proposal and this rule also require that any vessel entering any port or place on the Great Lakes, U.S. or Canadian, and coming from the high seas report to the Commander, Ninth Coast Guard District, the information in § 161.9 at least 24 hours before arriving at Snell Locks, Massena, New York. Comments are invited on this change.

Several commenters felt that the term "hazardous conditions" was so broad as to include any conceivable situation or eventuality. The Coast Guard intent when defining this term was not to require that every illness, leak, or other minor problem be reported. The requirement is qualified by the words "... that could adversely affect the safety" (italic provided) of any vessel, bridge, etc. Thus, a seaman with a headache as one commenter used as an example, is not a condition that could adversely affect the safety of the vessel and therefore need not be reported. However, the master of the vessel suffering a heart attack may adversely affect the safety of a vessel. The Coast Guard is only requiring that the COTP be informed of these serious problems so that a response and possible mitigating measures can be planned and acted on if necessary.

Many commenters stated that, in their opinion, § 161.3, the "Applicability" section of the proposed rule, was confusing, contradictory, and vague. The Coast Guard has rewritten this section to make it brief and easier for the layman to understand. Portions of the proposal have been combined when applicable, and other portions have been omitted when found to be unnecessary.

Several commenters stated that the information required in the proposed regulations would not contribute to the stated purpose of the regulation, i.e., safety of the port and environmental protection. The Coast Guard disagrees with this comment. The basic concept of the COTP having the knowledge of which cargoes and conditions on vessels in the zone are potential threats to the safety of the port allows for anticipation of problems and pre-incident planning, resulting in more effective response to

port emergencies by COTP personnel. This advance planning is essential to the safety of the port and the protection of the marine environment.

Some commenters were of the opinion that the Coast Guard had not complied with the Ports and Waterways Safety Act of 1972 (PWSA), under which authority the proposed rules were issued. 33 U.S.C. 1224 requires that the Secretary of the Department of Transportation (the Commandant of the Coast Guard by delegation in 49 CFR 1.46(n)(4)) consider certain specific factors in determining the need for any rule or regulation issued under the authority of the PWSA. All applicable factors have been considered by the Coast Guard in this rulemaking process. Substantive changes have been made in the final rule after consideration of the economic impact, effects on the marine industry and local practices in order to decrease the number of notifications that will have to be made.

On October 17, 1978, after the issuance of the proposed rule, Congress passed the Port and Tanker Safety Act of 1978 (Pub. L. 95-474, 92 Stat. 1471), which amends the PWSA. One provision of this law (33 USC 1223) allows the Secretary to "require the receipt of prearrival messages from any vessel, destined for a port or place subject to the jurisdiction of the United States, in sufficient time to permit advance vessel traffic planning prior to port entry, which shall include any information which is not already a matter of record and which the Secretary determines necessary for the control of the vessel and the safety of the port or the marine environment." This new authority has been indicated by a change in the authority citation for the final rule, but the Coast Guard has limited the application of the regulations to "ports in the United States" and has not extended their application to those ports and places subject to the jurisdiction of the United States, outside the navigable waters of the United States. "United States" is defined in Sec. 2 of the Port and Tanker Safety Act of 1978. (An advance notice of arrival requirement for deepwater ports is at 33 CFR 150.333).

Two commenters voiced concern that the proposed regulation, by excepting foreign vessels from reporting for their first U.S. port call only, would reduce participation of the world's tanker fleet in the AMVER program. The Coast Guard agrees with this comment and therefore has changed the requirement to allow for the same exception as in the current regulation. The only reports now that will need to be made by vessels

participating in AMVER or USMER and coming from foreign voyages will be after leaving the first U.S. port call and continuing on to subsequent U.S. ports of call in other COTP zones on coast wise voyages of 24 hours or less. Because the rule allows now for the same exception concerning AMVER as in the current regulation, the Coast Guard believes that the rule will not affect the AMVER program. As this is a change from the proposal, public comment is invited on this exception.

Three commenters stated that the proposal failed to provide for the reporting of vessels which must pass through a COTP zone enroute to another COTP zone. Vessels enroute are required to report only to the COTP at the port of destination no matter how many COTP zones they pass through. This has been done intentionally to minimize the economic burden of these rules; if experience with this rule indicates the need for additional notices, they will be proposed later. However, even under this rule a hazardous condition also would have to be reported to the COTP of the zone in which it occurs. In addition, commenters stated that no provisions were made for vessels which require a temporary anchorage in a COTP zone other than the zone of destination (such as Houston, which has its anchorages in Galveston). A vessel which is going to anchor in any port or place prior to reaching its ultimate port or place of destination is considered to have two or more places of destination and must give advance notice to all COTP's concerned. The Coast Guard has clarified this by defining the term "port or place of destination." A waiver provision has been added to the final rule to allow the COTP some discretion in situations such as when a vessel must unexpectedly anchor.

In addition, a provision to update estimated times of arrival and departure has been added to each of the notification sections. This provision was added to clarify the requirements. As this is an additional reporting requirement, the Coast Guard invites comments on this change.

One person commented that it appears "methane" was accidentally omitted from the "cargo of particular hazard" definition proposed in § 126.10. "Methane" was subsequently proposed in the supplementary notice to the proposed rule (42 FR 32440). Therefore, this commodity has been returned to the "cargo of particular hazard" definition in the final rule.

One commenter felt that the proposed notification of departure provisions (§ 161.17) should not apply as proposed

to container ships. The Coast Guard disagrees with this comment, and the departure notification requirement has not been changed in that regard. Container vessels must report departures when they are carrying "certain dangerous cargoes" such as Class A explosives, oxidizing materials or blasting agents, or radioactive materials. Other "certain dangerous cargoes" as defined, are required only to be reported when "carried in bulk." The definition of "carried in bulk" means "a commodity . . . carried on board a vessel without containers . . ." Thus, container vessels need not report their departures when carrying any cargoes other than the three described above. This commenter also felt the proposed definition of "carried in bulk" is confusing. This definition is the same as that in the delegation of authority to the Coast Guard in 49 CFR 1.46(f).

One Federal agency requested clarification of Coast Guard authority to issue regulations relative to the Saint Lawrence Seaway under Section 104 of the PWSA in view of the fact that the Secretary of Transportation has delegated to the Administrator of the Saint Lawrence Seaway Development Corporation such authority in 49 CFR 1.52(a). The Coast Guard proposal was not a regulation affecting the operation of the Saint Lawrence Seaway. The Saint Lawrence Seaway and Snell Locks as used in the proposal are reference points which trigger the notification requirements for vessels entering the Great Lakes. Reports are to be made to the Coast Guard for Coast Guard use only and will not affect the operation or administration of the Saint Lawrence Seaway. In addition, the proposed language concerning the Saint Lawrence Seaway notification requirements is derived from notification requirements currently in effect under Part 124.

One commenter states that cargo movement details are proprietary information. The Coast Guard considers cargo movement information to be "commercial information" and as such is handled as "confidential" under the exception in 5 U.S.C. 552(b)(4) to the Freedom of Information Act. Accordingly, the information will be obtained for internal Coast Guard use only and will not be released to the public.

One commenter stated that the proposed regulations were duplicative and conflicted with other Coast Guard rules, proposals and directives. One area of duplication that was pointed out was with the navigation safety regulations (33 CFR 164.53(b)), which require that certain non-operating

equipment be reported to the nearest COTP or District Commander. This is substantively the same as an element of the definition for "hazardous conditions" in proposed § 161.5 which concerns any "lack of or failure of any of the equipment required under 33 CFR 164.35". The Coast Guard has removed this element from the definition to eliminate the duplication. The required report on the "operational condition of the equipment under 33 CFR 164.35" proposed in §§ 161.15 and 161.17 will remain, however, as this requires an affirmative statement as to the status of the equipment. Also, a change to 33 CFR 164.53(b) is promulgated in this final rule to allow vessels participating in a VTS system to report failure of non-operating equipment to the Vessel Traffic Center (VTC) in lieu of the nearest COTP. Since this is a change to this rule not proposed in the NPRM, public comment is invited.

In addition to the above, the commenter also stated that these proposed regulations duplicated the proposed regulations for a U.S. Marine Safety Information System published in the April 13, 1978 issue of the Federal Register (43 FR 15586). The proposed rule of April 13, 1978 was withdrawn in the February 5, 1979 issue of the Federal Register (44 FR 6956), and therefore this comment is moot.

Numerous commenters from the offshore oil and gas exploration industry stated that the regulations would be particularly burdensome to that industry as proposed because of the reporting requirements for a dangerous cargo. They stated that it is sometimes necessary for vessels used by this industry to carry either Class A explosives or instruments which would require a Yellow III label for radioactivity. Because of the small amounts of "certain dangerous cargo" carried by vessels used by this particular industry and the immediate need for the materials at a drill site, the commenters stated that the 24 hour notice was not feasible. In addition, they pointed out that these vessels operated only in and out of one COTP zone. The Coast Guard therefore has excepted vessels operated for the offshore oil and gas exploration and production industry from all reporting requirements except those pertaining to hazardous conditions in § 161.15. The Coast Guard points out that this exception does not exempt those vessels from obtaining the permit for Class A explosives required under 49 CFR 176.100.

Several commenters stated that there are survey and medical instruments which may require a Yellow III label for radioactivity, which should not be listed

as "certain dangerous cargo". In order to better describe the radioactive materials the Coast Guard is concerned with, the radioactive category in the definition of "certain dangerous cargo" has been changed to read "large quantity radioactive material as defined in 49 CFR 173.389(b) or Fissile Class III shipments of fissile radioactive material as defined in 49 CFR 173.389(a)(3)".

In response to a Federal agency request, an exception has been provided from the general reporting requirements for "public vessels" (defined in § 161.3) since this information is readily available to the Coast Guard through other channels.

An additional requirement was added for vessels submitting a schedule for exception from the regulations as required in § 161.1(c)(3). This addition requires that the name and country of registry of the vessel be on the schedule. This is not considered to be an additional burden as it is a requirement that a reasonable person would ordinarily do anyway for purposes of identification and clarity. In addition, a time frame for submission of the schedule was added to clarify the requirement. Comments are also invited on this change.

This rule has been reviewed under the Department of Transportation's "Regulatory Policies and Procedures" (44 FR 11034, February 26, 1979). A final evaluation has been prepared and is included in the public docket. This may be obtained as indicated in "ADDRESSES".

In consideration of the foregoing, Chapter I of Title 33, Code of Federal Regulations is amended as follows:

#### **PART 124—CONTROL OVER MOVEMENT OF VESSELS [Revoked]**

1. By revoking and reserving Part 124.

#### **PART 126—HANDLING OF EXPLOSIVES OR OTHER DANGEROUS CARGOES WITHIN OR CONTIGUOUS TO WATERFRONT FACILITIES**

2. By revising § 126.05(b) to read as follows:

§ 126.05 Designated waterfront facility.

(b) "Facility of particular hazard" means a designated waterfront facility that is authorized to handle a cargo of particular hazard, as defined in § 126.10.

3. By adding a new § 126.10 to read as follows:

§ 126.10 Cargo of particular hazard.

"Cargo of particular hazard" means any of the following:

(a) Class A explosive as defined in 46 CFR 146.20-7 and 49 CFR 173.53.

(b) Oxidizing material or blasting agent for which a permit is required under 49 CFR 176.415.

(c) Large quantity radioactive material, as defined in 49 CFR 173.389(b), or Fissile Class III shipments of fissile radioactive material, as defined in 49 CFR 173.389(a)(3).

(d) The following cargoes when carried in bulk:

Acetaldehyde  
Acetone Cyanohydrin  
Acrylonitrile  
Allyl Chloride  
Ammonia, anhydrous  
Butadiene  
Butane  
Butene  
Butylene Oxide  
Carbon Disulfide  
Chlorine  
Chlorosulfonic Acid  
Dimethylamine  
Epichlorohydrin  
Ethane  
Ethylene  
Ethylene Oxide  
Ethyl Ether  
Methane  
Methyl Acetylene, Propadiene Mixture, Stabilized  
Methyl Bromide  
Methyl Chloride  
Motor Fuel Antiknock Compounds Containing Lead Alkyls  
Oleum  
Phosphorous, Elemental  
Propane  
Propylene  
Propylene Oxide  
Sulfur Dioxide  
Toluene Diisocyanate  
Vinyl Chloride  
Vinyl Ethyl Ether.

4. By amending § 126.27 by revoking paragraph (b)(8) and by revising paragraph (b)(7) to read as follows:

§ 126.27 General permit for handling dangerous cargo.

(b) \* \* \*

(7) A bulk shipment of a cargo of particular hazard as defined in § 126.10(d).

## PART 164—NAVIGATION SAFETY REGULATIONS

5. By revising § 164.53(b) to read as follows:

§ 164.53 Deviations from rules and reporting: Non-operating equipment.

(b) If the vessel's radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly, the person directing the movement of the vessel must report or cause to be reported that it is not operating properly

to the nearest Captain of the Port, District Commander, or, if participating in a Vessel Traffic Service, to the Vessel Traffic Center, as soon as possible.

## PART 161—VESSEL TRAFFIC MANAGEMENT

6. By adding a new Subpart A to Part 161 to read as follows:

Subpart A—Notifications of arrivals, departures, hazardous conditions, and certain dangerous cargoes

Sec.

161.1 Applicability and exceptions to applicability.

161.3 Definitions.

161.5 Waivers.

161.7 Notice of arrival: vessels bound for ports or places in the United States.

161.9 Notice of arrival: vessels bound from the high seas for ports or places on the Great Lakes.

161.11 Notice of arrival: vessels carrying dangerous cargo.

161.13 Notice of departure: vessels carrying dangerous cargo.

161.15 Notice of hazardous conditions.

Authority: Sec. 2, 92 Stat. 1471 (33 U.S.C. 1221); 49 CFR 1.46(n)(4).

### § 161.1 Applicability and exceptions to applicability.

(a) This subpart prescribes notification requirements for U.S. and foreign vessels bound for or departing from ports or places in the United States.

(b) This subpart does not apply to boats under the Federal Boat Safety Act of 1971 (46 U.S.C. 1451, et seq.) and, except § 161.15, does not apply to passenger and supply vessels when they are employed in the exploration for or in the exploitation of oil, gas, or mineral resources on the continental shelf.

(c) Sections 161.7 and 161.9 do not apply to the following:

(1) Each vessel of less than 1600 gross tons.

(2) Each vessel operating exclusively within a Captain of the Port zone.

(3) Each vessel operating upon a route that is described in a schedule that is submitted to the Captain of the Port for each port or place of destination listed in the schedule at least 24 hours in advance of the first date and time of arrival listed on the schedule and contains:

(i) Name and country of registry of the vessel;

(ii) Each port or place of destination; and

(iii) Dates and times of arrivals and departures at those ports or places.

(4) Each vessel arriving at a port or place under force majeure.

(5) Each vessel entering a port of call in the United States in compliance with

the Automated Mutual Assistance Vessel Rescue System (AMVER).

(6) Each vessel entering a port of call in the United States in compliance with the U.S. Flag Merchant Vessel Locator Filing System (USMER).

(7) Each barge.

(8) Each public vessel.

(d) Sections 161.7, 161.11 and 161.13 do not apply to each vessel upon the waters of the Mississippi River between its source and mile 235 AHP and all the tributaries emptying therein and their tributaries, and that part of the Atchafalaya River above its junction with the Plaquemine-Morgan City alternate waterway, and the Red River of the North.

### § 161.3 Definitions.

As used in this subpart:

(a) "Agent" means any person, partnership, firm, company or corporation engaged by the owner or charterer of a vessel to act in their behalf in matters concerning the vessel.

(b) "Carried in bulk" means a commodity that is loaded or carried on board a vessel without containers or labels and received and handled without mark or count.

(c) "Certain dangerous cargo" includes any of the following:

(1) Class A explosives, as defined in 46 CFR 146.20-7 and 49 CFR 173.53.

(2) Oxidizing materials or blasting agents for which a permit is required under 49 CFR 176.415.

(3) Large quantity radioactive material, as defined in 49 CFR 173.389(b), or Fissile Class III shipments of fissile radioactive material, as defined in 49 CFR 173.389(a)(3).

(4) Each cargo under Table I of 46 CFR Part 153 when carried in bulk.

(5) Any of the following when carried in bulk:

Acetaldehyde  
Ammonia, anhydrous  
Butadiene  
Butane  
Butene  
Butylene Oxide  
Chlorine  
Ethane  
Ethylene  
Ethylene Oxide  
Methane  
Methyl Acetylene, Propadiene Mixture, Stabilized  
Methyl Bromide  
Methyl Chloride  
Phosphorous, elemental  
Propane  
Propylene  
Sulfur Dioxide  
Vinyl Chloride.

(d) "Hazardous condition" means any condition that could adversely affect the safety of any vessel, bridge, structure, or



shore area or the environmental quality of any port, harbor, or navigable water of the United States. This condition could include but is not limited to, fire, explosion, grounding, leakage, damage, illness of a person on board, or a manning shortage.

(e) "Port or place of departure" means any port or place in which a vessel is anchored or moored.

(f) "Port or place of destination" means any port or place to which a vessel is bound to anchor or moor.

(g) "Public vessel" means a vessel owned by and being used in the public service of the United States. It does not include a vessel owned by the United States and engaged in a trade or commercial service or a vessel under contract or charter to the United States.

(h) "Vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.

#### § 161.5 Waivers.

The Captain of the Port may waive, within that Captain of the Port's designated zone, any of the requirements of this subpart for any vessel or class of vessels upon finding that the vessel, route, area of operations, conditions of the voyage, or other circumstances are such that application of this subpart is unnecessary or impractical for purposes of safety, environmental protection, or national security.

#### § 161.7 Notice of arrival: Vessels bound for ports or places in the United States.

(a) The owner, master, agent or person in charge of a vessel on a voyage of 24 hours or more shall report under paragraph (c) of this section at least 24 hours before entering the port or place of destination.

(b) The owner, master, agent, or person in charge of a vessel on a voyage of less than 24 hours shall report under paragraph (c) of this section before departing the port or place of departure.

(c) The Captain of the Port of the port or place of destination in the United States must be notified of:

(1) The name and country of registry of the vessel;

(2) The name of the port or place of departure;

(3) The name of the port or place of destination; and

(4) The estimated time of arrival at the port or place.

If the estimated time of arrival changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

#### § 161.9 Notice of arrival: Vessels bound from the high seas for ports or places on the Great Lakes.

In addition to complying with the requirements of § 161.7, the owner, master, agent, or person in charge of a vessel bound from the high seas for any port or place of destination on Lake Superior, Lake Michigan, Lake Huron, Lake Erie, Lake Ontario, their connecting and tributary waters, the Saint Lawrence River as far east as Saint Regis, or adjacent port areas of these waters, shall notify the Commander, Ninth Coast Guard District, at least 24 hours before arriving at the Snell Locks, Massena, New York of:

(a) The name and country of registry of the vessel; and

(b) The estimated time of arrival at the Snell Locks, Massena, New York. If the estimated time of arrival changes by more than six hours from the latest reported time, Commander, Ninth Coast Guard District must be notified of the correction as soon as the change is known.

#### § 161.11 Notice of arrival: Vessels carrying certain dangerous cargo.

(a) The owner, master, agent, or person in charge of a vessel, except a barge, bound for a port or place in the United States carrying a certain dangerous cargo shall notify the Captain of the Port of the port or place of destination at least 24 hours before entering that port or place of:

(1) The name and country of registry of the vessel;

(2) The location of the vessel at the time of the report;

(3) The name of each certain dangerous cargo carried;

(4) The amount of each certain dangerous cargo carried;

(5) The stowage location of each certain dangerous cargo;

(6) The operational condition of the equipment under § 164.35 of this chapter;

(7) The name of the port or place of destination; and

(8) The estimated time of arrival at that port or place.

If the estimated time of arrival changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

(b) The owner, master, agent, or person in charge of a barge bound for a port or place in the United States carrying a certain dangerous cargo shall report the information required in paragraph (a)(1) through (a)(8) of this section to the Captain of the Port of the port or place of destination at least 4 hours before entering that port or place.

#### § 161.13 Notice of departure: Vessels carrying certain dangerous cargo.

(a) The owner, master, agent, or person in charge of a vessel, except a barge, departing from a port or place in the United States for any other port or place and carrying a certain dangerous cargo shall notify the Captain of the Port of the port or place of departure at least 24 hours before departing, unless this notification was made within 2 hours after the vessel's arrival of:

(1) The name and country of the registry of the vessel;

(2) The name of each certain dangerous cargo carried;

(3) The amount of each certain dangerous cargo carried;

(4) The stowage location of each certain dangerous cargo carried;

(5) The operational condition of the equipment under § 164.34 of this chapter;

(6) The name of the port or place of departure; and

(7) The estimated time of departure from the port or place.

If the estimated time of departure changes by more than six hours from the latest reported time, the Captain of the Port must be notified of the correction as soon as the change is known.

(b) The owner, master, agent, or person in charge of a barge departing from a port or place in the United States for any other port or place and carrying a certain dangerous cargo shall report the information required in paragraph (a)(1) through (a)(7) of this section to the Captain of the Port of the port or place of departure at least 4 hours before departing unless this report was made within 2 hours after the barge's arrival.

#### § 161.15 Notice of hazardous conditions.

Whenever there is a hazardous condition on board a vessel, the owner, master, agent, or person in charge shall immediately notify the Captain of the Port of the port or place of destination and the Captain of the Port of the port or place in which the vessel is located of the hazardous condition.

(Sec. 2, 92 Stat. 1471 [33 U.S.C. 1221]; 49 CFR 1.46(n)(4)).

J. B. Hayes,

*Admiral, U.S. Coast Guard, Commandant.*

October 30, 1979.

[FR Doc. 79-34158 Filed 11-2-79; 8:45 am]

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Monday  
November 5, 1979

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**Part III**

**Department of  
Transportation**

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**Federal Highway Administration  
National Highway Traffic Safety  
Administration**

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**National Maximum Speed Limit; Speed  
Limit Certification and Monitoring  
Requirements; Proposed Rulemaking;  
Republication of Amendment and  
Extension of Emergency Final Rule and  
Extension of Comment Period**

## DEPARTMENT OF TRANSPORTATION

## Federal Highway Administration

## National Highway Traffic Safety Administration

## 23 CFR Part 658

[FHWA Docket No. 78-41, Notice 2]

## National Maximum Speed Limit; Certification and Monitoring Requirements

**AGENCY:** Federal Highway Administration (FHWA), and National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

**ACTION:** Extension of comment due date and republication of amendment and extension to emergency final rule.

**SUMMARY:** On September 27, the Federal Highway Administration (FHWA) and the National Highway Traffic Safety Administration (NHTSA) published an amendment to its emergency final rules concerning certification and monitoring requirements for the National maximum speed limit. Comments were originally due on November 26, 1979. This document extends the comment due date through January 4, 1980. The FHWA and NHTSA is republishing this amendment in its entirety for the convenience of the reader. (See FR Doc. 79-33771 in the Separate Part of the Federal Register.)

**DATES:** This amendment and extension becomes effective on October 1, 1979. Comments must be received on or before January 4, 1980.

**ADDRESS:** Anyone wishing to submit written comments may do so, preferably in triplicate, to FHWA Docket No. 78-41, Notices 2, Federal Highway Administration, Room 4205, HCC-10, 400 Seventh Street, SW., Washington, D.C. 20590. All comments and suggestions received will be available for examination at the above address between 7:45 a.m. and 4:15 p.m. ET, Monday through Friday.

**FOR FURTHER INFORMATION CONTACT:** William F. Bauch, Office of Traffic Operations, 202/426-1993; or David C. Oliver, Office of the Chief Counsel, 202/426-0825.

**SUPPLEMENTARY INFORMATION:** Section 205 of the Surface Transportation Assistance Act of 1978, Pub. L. 95-599, 92 Stat. 2689, amended 23 U.S.C. 154 to include criteria against which to judge each State's level of compliance with the 55 mile-per-hour national maximum speed limit. The Act also legislated a significant change in the speed monitoring data collection procedures.

Title 23 U.S.C. 154 now requires that the "percent exceeding 55 miles per hour" figure, reported with each State's annual certification of speed limit enforcement, be based on the speeds of all vehicles, or a representative sample of all vehicles. This requirement is in contrast to the "free-flow" vehicle concept which had been the basis of the speed monitoring programs in effect previously.

The new legislation, which the President signed into law on November 6, 1978, made these new program features effective immediately and thus applicable to the certification period ending September 30, 1979. Recognizing that the legislation would require substantial modification of the governing regulation, and that these modifications would require a considerable lead time to finalize, the FHWA issued an emergency regulation (43 FR 59464) on December 20, 1978, to provide interim program guidance for the certification period ending September 30, 1979. The intent was to have a "final" regulation, which took into account all of the new requirements in place and effective October 1, 1979. A notice of proposed rulemaking is being issued and therefore a final regulation may not be issued for several months. Accordingly we are extending the effective period of the existing speed monitoring certification requirements in 23 CFR 658.7 for one additional certification period, i.e., through the 12 months ending September 30, 1980.

We are aware of the fact that a number of States already have taken delivery, or at least have placed orders for various types of automatic vehicle speed monitoring equipment. These actions are being taken in anticipation of probable future speed monitoring requirements. Since the majority of States have not reached this stage in equipment purchase, we feel that it is only reasonable to permit these States to follow current procedures for another year. However for the States that do attain automatic speed monitoring capability during the year, elimination of all "free-flow" monitoring and complete adoption of automatic monitoring may be implemented at the beginning of a calendar quarter. Analysis procedures should be altered to reflect the change in data collection, with "free-flow" conversion factors being used only for the period up to the equipment changeover.

Fifteen comments were received in the public docket on the December 20, 1978 emergency regulation. The consensus of the comments stressed two points. First, as an interim measure the

regulation would be acceptable, with no specific comments received on the methodology itself; and second, the regulation should not be retained on a permanent basis. The substance of these comments was that some type of machine monitoring of all traffic at logically determined, representative sites should constitute the basis of a final regulation. The notice of proposed rulemaking which is being issued addresses this subject in detail.

Accordingly, the only revisions to 23 CFR 658.7(d) in extending its effective period will be:

1. To require that the supplemental data collection of paragraph (2) be accomplished during each quarter of the twelve month period ending September 30, 1980, that "free-flow" speed monitoring would be scheduled. The current wording requires that the supplemental data collection be accomplished during the third and fourth quarters of the twelve month period ending September 30, 1979; and

2. Allow changeover to automatic machine based all traffic speed monitoring during the speed monitoring year.

In consideration of the foregoing 23 CFR 658.7(d) is amended as follows effective October 1, 1979:

**§ 658.7 Certification of speed limit enforcement.**

\* \* \* \* \*

(d) \* \* \*

(2) \* \* \*

(i) *Use of automatic speed recording or speed classifying machines.* Using this method, data should be collected at a minimum of two locations on each highway type monitored by a State, during each quarter of the speed monitoring year. As a minimum, data should be collected during the same time period and cover the same traffic as that from which the "free-flow" data are collected.

(ii) *Supplemental radar data.* This method would require the commitment of additional personnel and equipment in order to monitor all vehicles during the same time period that "free-flow" data are being collected. This effort would be required at a minimum of two locations per highway type monitored by a State, during each quarter of the speed monitoring year.

(iii) *Supplemental radar data—sampling the traffic stream.* Where traffic volumes are large enough to make radar monitoring of all vehicles impractical, a sampling of the traffic stream may be monitored. This method would involve monitoring every nth vehicle in the traffic stream ("n" to be determined by site geometrics, i.e.,

number of lanes, traffic volumes, and data recording capability). If volumes warrant, data may be collected by lane, by 15-minute time periods, for the duration of "free-flow" collection period. As a minimum this method would be used at two locations per highway type monitored by a State during each quarter of the speed monitoring year.

\* \* \* \* \*

(5) If a State attains automatic "all traffic" speed monitoring capability during the 12 months ending September 30, 1980, the State may commence use of this capability with the quarter following FHWA Division Administrator approval of this changeover. Procedures for calculating the annual statewide percentage exceeding 55 miles per hour should reflect the use of the two data collection methods during the year.

\* \* \* \* \*

(23 U.S.C. 141, 154; section 205 of the Surface Transportation Assistance Act of 1978, Pub. L. 95-599, 92 Stat. 2689; 49 CFR 1.48(b))

**Note.**—The Federal Highway Administrator and the National Highway Traffic Safety Administrator have determined that this document relates to a significant regulatory action according to the criteria established by the Department of Transportation pursuant to E.O. 12044. A regulatory evaluation is available for inspection in the public docket and may be obtained by contacting Mr. William F. Bauc's of the program office at the address specified above.

Issued on: September 26, 1979.

Joan Claybrook,  
*National Highway Traffic Safety  
Administrator.*

R. D. Morgan,  
*Acting Federal Highway Administrator.*

[FR Doc. 79-33772 Filed 11-2-79; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

## Federal Highway Administration

## National Highway Traffic Safety Administration

## 23 CFR Part 659

[FHWA Docket No. 78-41, Notice 3]

## National Maximum Speed Limit; Speed Limit Certification and Monitoring Requirements

**AGENCIES:** Federal Highway Administration (FHWA) and National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** This document sets forth the proposed requirements for a 55 mile-per-hour national maximum speed limit and the monitoring of speeds to meet the criteria for compliance with the speed limit, including procedures for determining noncompliance and the consequences of such a determination.

**DATES:** Comments must be received on or before January 4, 1980. The first certification to which the final rule would apply will be submitted on or before January 1, 1982, covering the period October 1, 1980, to September 30, 1981.

**ADDRESS:** Anyone wishing to submit written comments may do so, preferably in triplicate, to FHWA Docket No. 78-41, Notice 3, Federal Highway Administration, Room 4205, HCC-10, 400 Seventh Street, SW., Washington, D.C. 20590. All comments and suggestions received will be available for examination at the above address between 7:45 and 4:15 p.m. ET, Monday through Friday. Those desiring notification of receipt of comments must include a self-addressed stamped postcard.

**FOR FURTHER INFORMATION CONTACT:** William F. Bauch, Office of Traffic Operations, 202/426-1993; or David C. Oliver, Office of the Chief Counsel, 202/426-0825; Federal Highway Administration, 400 Seventh Street, SW., Washington, D.C. 20590.

**SUPPLEMENTARY INFORMATION:** The annual certification of speed limit enforcement by the States became a mandatory requirement upon passage of the Federal-Aid Highway Amendments of 1974, Pub. L. 93-643, 88 Stat. 2281, which added a new section 141 to title 23 of the United States Code (23 U.S.C.). Implementing regulations were published in the Federal Register on

September 9, 1975, and codified in 23 CFR 658.7.

The regulations specified the information that had to be submitted by each State as a part of its certification. Included was certain information relating to motorist observance of the speed limit on the State highway system. This data was to be reported as summary statistics derived from a statewide program of speed monitoring.

The requirement that mandated a speed monitoring program affected the States in differing ways. In the pre-"55" era, approximately 35 States were conducting speed surveys as part of their highway planning survey activities. The scope of these programs ranged from one or two survey stations in a few of the States to rather extensive programs in other States wherein many locations were surveyed on various classes of highways.

In addition to mandating a speed monitoring program in every State, program changes were required in those States with existing speed monitoring activities. The new requirements were set forth in a publication titled "Procedural Guide for Speed Monitoring," September 1975, Office of Highway Planning, Federal Highway Administration (FHWA).

The speed monitoring program in each State was developed within the guidelines set forth in the Procedural Guide. Among other things, the Procedural Guide established the boundaries of statistical accuracy of the speed data and prescribed the manner in which the speed data was to be obtained, i.e., in accordance with the classical traffic engineering techniques of measuring the speeds of an adequate sample of "free flowing" vehicles. Free flow is defined as being those vehicles that are unimpeded by other vehicles in the traffic stream so that the only constraint on the driver of a free flow vehicle is the driver's own choice of speed and the constraint of the 55 mile-per-hour speed limit. Some salient points are listed below.

1. Speed monitoring was to be conducted only on roads on the State highway system with a 55 mile-per-hour speed limit.

2. The highway sections subject to speed monitoring were to be divided into five categories: Interstate urban; Interstate rural; multilane divided; multilane undivided; and two-lane rural.

3. The number of monitoring locations on each class of highway was to be determined statistically in order to produce annual statewide results for average speeds by highway type accurately within plus or minus 2 miles per hour.

4. Reporting requirements for each highway category were to include the average speed, the median speed, the 85th percentile speed, and the percent of motorists exceeding 55, 60, and 65 miles per hour for the 12-month period ending on September 30 before the date by which certification is required.

5. The data from the five systems was to be summarized by weighting the respective averages. The States were given the option to choose a method of weighting by the number of vehicles (in each class) whose speed was measured, the number of miles of highway in each class, or the vehicle miles traveled (VMT) by all traffic on each class of highway.

The adoption of the Procedural Guide by each State established a basis for uniformity in the monitoring program. There are, however, differences in State laws or the applications of the provisions of the Procedural Guide that sometimes make it difficult to compare one State's summary data with another's.

A few examples of the effects of various State laws are discussed below. In some States the application of the speed limit law has created a situation where all two-lane roads have a speed limit lower than 55 miles per hour. In those cases the summary data is derived from field observations made only on freeway type facilities, and since these facilities have the highest speed profile of the five classes of highway, the weighted average speeds are relatively high. The other end of the spectrum evolves where State law provides that unless posted otherwise, the basic 55 mile-per-hour speed limit applies. States with this type of basic law have very large mileages of two-lane rural roads with a 55 mile-per-hour speed limit and since these facilities have the lowest speed profile of the five classes of highway, the weighted average speeds are relatively low. Also, it should be noted that if the number of miles of highway were chosen as the method of weighting in the States with large mileages of two-lane rural roads, the final weighted averages would probably be lower than would be the case if the number of vehicles or VMT were used as the basis for weighting.

While the above explanation illustrates why valid comparisons of summary data between States cannot be made, it should be emphasized that the methods chosen in each State, consistently applied each year, have produced data that can be compared on a year-to-year basis for each State as certifications have been received.

Section 205 of the Surface Transportation Assistance Act of 1978

(STAA), Pub. L. 95-599, 92 Stat. 2689, amended 23 U.S.C. 154 to set standards against which to judge each State's compliance with the 55 mile-per-hour national maximum speed limit. A graduated system of standards to measure the effectiveness of State speed limit programs, based on the percentage of motor vehicles exceeding 55 mile per hour, is now included in 23 U.S.C. 154. This compliance standard starts at 70 percent for the 12-month period ending September 30, 1979, requiring that no more than 70 percent of vehicles shall be exceeding 55 miles per hour, and is reduced by 10 percent each succeeding 12-month period until a standard of 30 percent applies for the 12 months ending September 30, 1983, and for each 12-month period thereafter. Additionally, 23 U.S.C. 154 now specifies that the annual certification of speed limit enforcement required by 23 U.S.C. 141 will include:

\* \* \* data on the percentage of motor vehicles exceeding fifty-five miles per hour on public highways with speed limits posted at fifty-five miles per hour in accordance with criteria to be established by the Secretary, including criteria which takes into account the variability of speedometer readings and criteria based upon the speeds of all vehicles or a representative sample of all vehicles.

The "all vehicles" requirement is in contrast to the "freeflow vehicle" concept which has been the basis of the speed monitoring program since 1975. That, plus the establishment of the percent of vehicles exceeding 55 miles per hour as the criterion for determining compliance in any State, necessitated a change in the supporting speed data which each State is required to submit as a part of its annual certification of speed limit enforcement under 23 U.S.C. 141.

The new legislation, which the President signed into law on November 6, 1978, made these new program features effective immediately and thus applicable to the certification period ending September 30, 1979. Recognizing that the legislation would require substantial modification of the governing regulation, and that these modifications would require a considerable lead time to finalize, the FHWA published an emergency regulation (43 FR 59464) on December 20, 1978, to provide interim program guidance for the certification period ending September 30, 1979.

Fifteen comments were received on the December 20, 1978 emergency regulation as follows: 11 State transportation agencies, 1 private citizen, 1 county safety commission, 1 State public safety agency, and 1 highway organization. The consensus of

the comments stressed two points. First, as an interim measure the regulation would be acceptable, with no specific comments received on the methodology itself. Second, the regulation should not be retained on a permanent basis; the final regulation should require some type of machine monitoring of all traffic at logically determined, representative sites.

The New York Governor's Traffic Safety Committee suggested that guidelines be formulated for estimating VMT. Such guidelines have been developed for other FHWA programs (e.g., Mileage Facilities Reporting System, Highway Performance Monitoring System, TA-1 tables) and are considered adequate for use in the 55 m.p.h. speed monitoring program. Most other comments of a technical nature have been accommodated in this Notice of Proposed Rulemaking. The Nevada Department of Highways suggested that sufficient Federal funds be made available for the expanded monitoring program. Limited Federal funding is currently available under 23 U.S.C. 307. The availability of additional Federal funding is not treated in this Notice but is under review.

The emergency regulation has been extended for one additional certification period (October 1, 1979–September 30, 1980). This extension was published on an emergency basis on September 27, 1979, (44 FR 55592) in order to assure that procedures would be in effect at the start of the new certification period on October 1. Minor amendments governing the use of automatic speed monitoring equipment were also made at that time. Due to delays in the development of the extension and this notice of proposed rulemaking, it was not possible to publish the extension for prior notice and comment or to provide a 30-day delay in effective date and still meet the September 30 deadline. However, comments received on the original emergency regulation were considered, and comments on the extension and amendment have been invited and can be submitted to FHWA Docket No. 78-41, Notice 2, until January 4, 1980. A copy of the extension and amendment as originally published on September 27 is being republished in this same special part of today's Federal Register for ease of reference.

To assist the States in meeting the new requirements necessitated by the STAA, a new "Speed Monitoring Program Procedural Guide" has been prepared by the Office of Highway Planning, FHWA, and is being issued as an appendix to this proposed rule. Implementation of the "all vehicles"

concept requires a significant change in the method for selecting speed survey locations and additional statistical treatments have to be employed. A few of the more salient points contained in the new Procedural Guide are worthy of emphasis.

1. The target sampling accuracy of the annual statewide value for percent of vehicles exceeding 55 miles per hour is plus or minus 2.5 percent, at a 95 percent confidence level.

2. Speed surveys of minimum 24 hour duration are required.

3. The speed monitoring program, as outlined, leads itself strongly toward automated data collection.

4. The term "posted" has been defined to exclude roads functionally defined as local and any unpaved roads.

5. The five classes of highway which formed the basis for the speed monitoring program to date have been superseded by six categories of highway based on functional classifications.

6. The coverage concept is designed to allocate sessions based on the amount of travel (VMT) subject to the 55 m.p.h. speed limit, compensating for the additional variations due to larger volumes or mileages in some States. A sampling session is a single period of speed monitoring at a particular place (sampling location).

Uniformity in the collection and summarization of speed data has been given new importance with the passage of the STAA because of the system of penalties and incentives contained therein for either failure to meet the legally established criteria, or for exceeding the compliance criteria by stated amounts. Accordingly, the revised Procedural Guide specifies that all averages shall be weighted by factors which reflect the vehicle miles traveled on the various classes of highways. The universal use of VMT as the weighting factor will tend to emphasize the data obtained on the high volume roads and minimize the effect of large mileages of two-lane, low volume, highways. Comparisons of data between States should become more realistic than heretofore, and judgments relative to compliance with the stated criteria will be made from a relatively uniform data base.

Section 659.7 of the new regulation will require each State to develop a speed sampling and analysis plan following the guidelines set forth in the Procedural Guide. As proposed, the plan would be required to discuss the following subjects:

1. Functional grouping of highways;
2. Miles of highway with a 55 m.p.h. speed limit, by functional group;

3. Distribution of travel on highways with a 55 m.p.h. speed limit;

4. Sources of speed data used in calculating sample size;

5. Number of sampling locations and sessions and their distribution by system and geographic area;

6. Type and capabilities of speed measuring equipment to be used;

7. Data collection techniques;

8. Any deviation from analysis methods described in the regulation.

Section 659.9 would require the State to submit its initial plan to the FHWA for approval. Annual reviews and updates would also be required. The use of procedures for attaining statistical goals, other than the recommended procedure set forth in the Procedural Guide, would be approved in advance by FHWA.

Section 659.13 sets forth the required elements of the annual State certification and is not substantially different from current requirements.

Section 659.17 sets forth the statutory penalties for failure to certify or meet the compliance standards. Failure to enact or maintain or certify to a 55 m.p.h. speed limit, or failure to enforce that limit will result in a loss of project approval. Failure to meet the specified compliance levels will result in a loss of a portion of non-Interstate apportioned funds. Section 659.17(c) provides for a one-year delay in reduction of a State's Federal-aid highway apportionment where a bona fide claim is submitted by the State regarding hardship which would result from anticipated delays in Federal-aid highway projects.

The procedures for determining nonconformity, notifying the States of any proposed determination, and providing for a hearing on or informal resolution of such determinations have been completely revised. The proposed process, as set forth in § 659.19 of the regulation, consists of a proposed determination, notification to the State, provision for a hearing or informal resolution, and final determination. This procedure would apply to any proposed enforcement determination. However, since the compliance levels are established by law, once the monitoring requirements set forth in this part are effective, no hearing is necessary in those instances where the State fails to meet the specified level. Because the penalty may fall within a range of 1 to 5 (or 10) per centum, the State would be given an opportunity to meet with the U.S. Department of Transportation in order to discuss the ultimate amount to be withheld or any hardship claim made by the State.

**Note.**—The Federal Highway Administrator and the National Highway Traffic Safety Administrator have determined that this document contains a significant proposal in accordance with the criteria established by the Department of Transportation pursuant to E.O. 12044. A draft regulatory evaluation is available for inspection in the public docket and may be obtained by contacting Mr. William F. Bauch of the program office at the address specified above.

Issued on: October 26, 1979,

Karl S. Bowers,

Federal Highway Administrator.

Joan Claybrook,

National Highway Traffic Safety Administrator.

In consideration of the foregoing, the FHWA and the NHTSA hereby propose to amend Chapter I, Subchapter G, of Title 23, Code of Federal Regulations, by adding a new Part 659 as follows:

#### **PART 659—CERTIFICATION OF SPEED LIMIT ENFORCEMENT**

Sec.

659.1 Purpose and objective.

659.3 Definitions.

659.5 Adoption of a national maximum speed limit.

659.7 Formulation of a plan for monitoring speeds.

659.9 Guidelines and evaluations of operations.

659.11 Certification requirement.

659.13 Certification content.

659.15 Certification submittal.

659.17 Effect of failure to certify or to meet compliance standards.

659.19 Procedure for the reduction of funds.

Appendix—Speed monitoring program procedural guide for national maximum speed limit.

Authority: 23 U.S.C. 141, 154, 315; 205 of the Surface Transportation Assistance Act of 1978, Pub. L. 95-599, 92 Stat. 2689; 49 CFR 1.48(b) and 1.50.

##### **§ 659.1 Purpose and objective.**

(a) *Purpose.* The purpose of this regulation is to prescribe requirements for administering a program for monitoring speed on public highways in order to provide reliable data to be included in a State's annual certification.

(b) *Objective.* The objective of the program is to establish a valid statistical method of measuring a sample of vehicle speeds on a sample of highways in order to estimate the percentage of vehicles exceeding 55 miles per hour with sufficient accuracy to support a determination of compliance. A secondary objective is to quantify the overall statewide distribution of speeds by comparing other characteristics which may indicate the level of enforcement or public compliance, such as, average speed, median speed, 85th

percentile speed, and percentages of vehicles exceeding 60 and 65 miles per hour.

##### **§ 659.3 Definitions.**

(a) "State" means any one of the fifty States, the District of Columbia and Puerto Rico.

(b) "Highway" means all streets, roads or parkways under the jurisdiction of a State, including its political subdivisions, and open for use by the general public, and includes toll facilities.

(c) "Motor Vehicle" means any vehicle driven or drawn by mechanical power manufactured primarily for use on public highways, except any vehicle operated exclusively on a rail or rails.

(d) "Posted" means those roads with a legal speed limit of 55 m.p.h., excluding those roads functionally classified as "local" and any unpaved roads. This includes both State maintained and non-State maintained roads, including toll roads.

##### **§ 659.5 Adoption of a national maximum speed limit.**

The Secretary shall not approve any Federal-aid projects under 23 U.S.C. 100, in a State which fails to adopt or maintain maximum speed limits as follows:

(a) The maximum speed limit on any highway in the State shall be 55 m.p.h. or less, except that emergency and police motor vehicles may be authorized to operate at higher speeds when necessary to protect health or safety.

(b) Except as provided in paragraphs (c) and (d) of this section, the speed limit on any portion of a highway shall be uniformly applicable to all types of motor vehicles using such portion of highway, if on November 1, 1973, such portion of highway had a speed limit which was uniformly applicable to all types of vehicles using it.

(c) Notwithstanding the provisions of paragraph (b) of this section, a State may establish a lower speed limit for a motor vehicle operating under a special permit because of any weight or dimension of such vehicle, including any load thereon.

(d) Notwithstanding the provisions of paragraph (b) of this section, a State may specify nonuniform speed limits on any portion of a highway when the condition of the highway, weather, an accident, or other condition creates a temporary hazard to the safety of traffic on such portion of a highway.

##### **§ 659.7 Formulation of a plan for monitoring speeds.**

(a) Each State shall develop a speed sampling and analysis plan on an



annual basis following the guidelines set forth in the *Speed Monitoring Program Procedural Guide*<sup>1</sup> (SMPPG). As a result of many unknown factors, the guidelines set forth in the SMPPG rely on many assumptions. After a complete year's data are available, and thereafter on an annual basis, an evaluation must be made to determine the actual accuracy level obtained. Changes should be made to the sampling plan to increase its overall efficiency. Annual evaluations shall also include an examination of the travel figures (vehicles miles traveled (VMT) or daily vehicle miles traveled (DVMT)) in order to ascertain their validity and to make updates as needed.

(b) The plan shall discuss the following subjects at a minimum:

(1) Functional grouping of highways to be used:

(i) The functional class groupings of highways will be used to distribute the monitoring effort. Public highways shall be stratified based on the functional classification defined in the FHWA publication *Highway Functional Classification, Concepts, Criteria and Procedures*.<sup>2</sup> Some of the functional classes have been combined.

(ii) The groupings of functional classes of highway for the speed monitoring program shall be: *Urban* (Interstate; Other Freeways and Expressways and Other Principal Arterials; Minor Arterial Street System and Collector Street System). *Rural* (Interstate; Other Principal Arterials and Minor Arterial Road System; Collector Road System).

(2) Miles of highway with a 55 m.p.h. speed limit, by functional group.

(i) Miles of highway with a 55 m.p.h. speed limit shall be used in the selection of speed monitoring locations. Mileage by functional system has been determined in conjunction with the Federal-aid system realignment in 1976 and was reported to FHWA as part of the 1976 National Highway Inventory and Performance Study<sup>3</sup> (NHIPS).

(ii) The proportion of paved mileage in each grouping subject to the 55 m.p.h. speed limit shall be determined by reviewing roadway section logs or other

inventory records that provide speed limit by roadway segment.

(3) Distribution of travel (VMT or DVMT) on highways with a 55 m.p.h. speed limit. The VMT by functional system shall be used to distribute the data collection effort and in the calculation of the statewide percent of vehicles exceeding 55 m.p.h.

(4) Sources of speed data used in calculating sample size (default values or data from previous monitoring).

(5) Number of sampling locations and sessions and their distribution by system and geographic area. A sampling session shall consist of a single period of monitoring at a particular place (sampling location).

(i) The sampling plan shall consist of a statewide number of sampling locations classified into:

(A) Standard sampling locations—where the number of vehicles exceeding 55 m.p.h. and the total number of vehicles passing the location during the monitoring period are the only required items to be collected. Standard sampling locations require one sampling session each year.

(B) Control sampling location—data collection consists of the individual speeds of all vehicles passing the location during the monitoring period, or speeds classified in small ranges. Control sampling locations shall be sampled once each quarter and shall constitute at least 20 percent of the statewide sample locations. A minimum of one control location shall be located in each highway functional grouping.

(ii) The following statistical criteria shall be the basic minimum requirements of the sample design:

(A) The target accuracy of the annual statewide percentage exceeding 55 m.p.h. shall be sufficient to significantly detect either a positive or negative difference greater than 2.5 percent.

(B) A significance level of 5 percent shall be used for all estimates (equivalent to a 95 percent confidence interval).

(iii) A 24-hour monitoring period shall be required for individual sampling sessions.

(iv) The minimum sample size needed by each State shall be determined under both (A) the accuracy of statistical estimates concept and (B) the coverage of population sample concept. The larger of the two numbers shall be used as the statewide minimum sample size.

(v) The statewide number of locations shall be allocated by highway grouping (by estimating the relative travel (VMT or DVMT) carried by the highway segments with a 55 m.p.h. speed limit in each functional grouping).

(A) The following formula shall be used to accomplish this allocation:

$$m_h = m_s w_h$$

where  $m_h$  = number of locations allocated to the  $h^{\text{th}}$  functional highway grouping.

$m_s$  = statewide minimum sample size (number of locations).

$w_h$  = relative travel (VMT or DVMT) on roads subject to the 55 m.p.h. speed limit in the  $h^{\text{th}}$  highway grouping.

(B) No locations need to be allocated to any functional grouping with less than one percent of the statewide travel subject to the 55 m.p.h. limit.

(vi) The selection of location where the sampling sessions will take place shall be made as follows:

(A) Construction of the sampling frames—the statewide frame size shall be the total number of highway segments in the State which are subject to the 55 m.p.h. speed limit. Preferably these will be 5 mile segments, however, other similar segment criteria established for State inventory files are permissible.

(B) Selection of sample segments—the location of sample segments shall be established by simple random selection without replacement with the help of the table of random numbers (see the SMPPG).

(C) The manner and sequence in which both standard and control locations are selected shall be documented and retained for future review. Locations shall be plotted on a map.

(6) Type and capabilities of speed measuring equipment to be used.

(7) Data collection.

(i) Schedule—a detailed schedule shall take into account day of the week, month, and season of the year.

(ii) Field data collection—the goal is to obtain, during each monitoring session, a representative record of the traffic speeds that normally occur in a given segment. Therefore, the choice of a data collection site within a given segment should reflect the geometric design conditions of the segment. In addition, the collection of data should not be attempted if conditions at a site are such that the normal flow of traffic is substantially restricted.

(8) Any deviation from analysis methods described above or in the SMPPG.

#### § 659.9 Guidelines and evaluations of operations.

The State shall submit its initial plan to the FHWA Division Administrator for approval. The plan shall be reviewed annually and updated as conditions and new data indicate. The SMPPG describes the recommended procedure for attaining statistical goals. Other

<sup>1</sup> This document is included as an appendix to this regulation and will be included in the CFR. Also, it is available for inspection and copying as prescribed in 49 CFR Part 7, Appendix D.

<sup>2</sup> This document was published by the U.S. Department of Transportation, Federal Highway Administration, July 1974 and Reprinted December 1978. It is issued in FHWA's Highway Planning Program Manual (HPPM) as Transmittal 455, Volume 20, Appendix 12. It is available for inspection and copying as prescribed in 49 CFR Part 7, Appendix D.

<sup>3</sup> "National Highway Inventory and Performance Study Manual: 1976," U.S. DOT/FHWA, July 1975, available for inspection and copying as prescribed in 49 CFR Part 7, Appendix D.

proposed procedures shall be approved in advance by the FHWA Division Administrator.

#### § 659.11 Certification requirement.

Each State shall certify to the Secretary (Federal Highway and National Highway Traffic Safety Administrators) before January 1 of each year that it is enforcing the national maximum 55 m.p.h. speed limit on all public highways in accordance with 23 U.S.C. 154. The certification shall be supported by information on activities and results achieved during the 12-month period ending on September 30 preceding the January 1 date by which certification is required.

#### § 659.13 Certification content.

The certification shall consist of the following elements:

(a) A statement by the Governor of the State, or an official designated by the Governor, that the 55 m.p.h. national maximum speed limit on public highways in the State is being enforced.

(b) A copy of any State law, regulation, administrative order, statement of policy or any other written instruction relating to enforcement of the 55 m.p.h. national maximum speed limit, which has not been included in earlier certifications, or a statement that there have been no changes to any such documents previously submitted. If a written enforcement agency policy on the 55 m.p.h. speed limit does not exist, a statement to that effect must also be included.

(c) Information relating to enforcement and monitoring as follows:

(1) Miles of highway with a 55 m.p.h. speed limit, by functional group.

(2) The number of citations issued by State agencies for violation of the 55 m.p.h. speed limit during each month of the 12-month period ending on September 30 before the date by which certification is required.

(d) Information relating to observance of the speed limit by motorists on the State highway system.

(1) The statewide percentage of vehicles exceeding the 55 m.p.h. speed limit weighted by the proportion of statewide 55 m.p.h. VMT on each of the six highway functional groupings.

(2) Summary statistics indicating the average speed, the median speed, and the 85th percentile speed and the percent of vehicles exceeding 60 m.p.h. and 65 m.p.h. for the 12-month period to which the certification applies.

(e) Percent of total statewide VMT on facilities with 55 m.p.h. speed limits.

#### § 659.15 Certification submittal.

(a) The Governor, or an official designated by the Governor, shall each year submit the original and three copies of the certification to the appropriate FHWA Division Administrator.

(b) FHWA and NHTSA field offices shall provide evaluations and comments when forwarding the original and one copy to the Washington Headquarters Office.

#### § 659.17 Effect of failure to certify or to meet compliance standards.

(a) If a State fails to certify as required by § 659.11 or if the Secretary determines that a State is not adequately enforcing the 55 m.p.h. national maximum speed limit on all public highways notwithstanding the State's certification, no Federal-aid highway project shall be approved under 23 U.S.C. 106 in that State.

(b) Beginning with the certification to be submitted before January 1, 1980, for the 12-month period ending September 30, 1979, in those States whose certification indicates that the percentage of motor vehicles exceeding 55 m.p.h. is greater than 70 per centum, the State's apportionment of Federal-aid highway funds under 23 U.S.C. 104(b)(1), 104(b)(2), and 104(b)(6) shall be reduced in an aggregate amount of up to 5 per centum of the amount to be apportioned for the fiscal year ending September 30, 1981. The following schedule will apply to subsequent years:

(1) If the Certification of January 1, 1981, shows a percentage exceeding 55 m.p.h. greater than 60 per centum, an aggregate amount of up to 5 per centum of apportioned funds for the fiscal year (FY) ending September 30, 1982, shall be withheld.

(2) If the Certification of January 1, 1982, shows a percentage exceeding 55 m.p.h. greater than 50 per centum, an aggregate amount of up to 5 per centum of apportioned funds for the fiscal year ending September 30, 1983, shall be withheld.

(3) If the Certification of January 1, 1983, shows a percentage exceeding 55 m.p.h. or greater than 40 per centum, an aggregate amount of up to 10 per centum of apportioned funds for the fiscal year ending September 30, 1984, shall be withheld.

(4) If the Certification of January 1, 1984, and each succeeding year shows a percentage exceeding 55 m.p.h. or greater than 30 per centum, an aggregate amount of up to 10 per centum of apportioned funds for the fiscal year ending September 30, 1985, and each succeeding fiscal year thereafter shall be withheld.

(c) Where a reduction in apportioned funds pursuant to paragraph (b) of this section will result in a hardship to a State, the fiscal year apportionment reduced for such State shall be the apportionment for one fiscal year later than set forth in paragraph (b) of this section. The State must submit a claim of hardship in writing supported by sound reasoning and indications that corrective or remedial measures are to be undertaken to improve the State's compliance posture. Hardship under this paragraph relates to adverse impacts (e.g., economic or environmental) which would result from a delay in the letting of Federal-aid highway projects.

(d) Funds withheld pursuant to paragraph (b) of this section shall be apportioned to a State upon a determination that the percentage of motor vehicles in such State exceeding 55 m.p.h. has dropped to the level specified for the fiscal year in which the funds were withheld. Such a determination shall be made on the basis of a following year's monitoring results.

#### § 659.19 Procedure for the reduction of funds.

(a) In addition to the procedure set forth in § 659.17(b) for a State which fails to meet the specified compliance standards, if it appears to the Administrators of the Federal Highway and National Highway Traffic Safety Administrations that a State has not submitted a certification conforming to the requirements of this part, or that the State is not adequately enforcing the national maximum speed limit of 55 m.p.h., the Administrators shall make in writing a proposed determination of nonconformity, and shall notify the Governor of the State of the proposed determination by certified mail. The notice shall state the reasons for the proposed determination and inform the State that it may within 30 days from the date of the letter request a hearing to show cause why it should not be found in nonconformity. If the State informs the Administrators before the end of the 30-day period that it wishes to attempt to resolve the matter informally, the Administrators may extend the time for requesting a hearing by an additional 30 days. In the event of a request for informal resolution, the State and the Administrators (or designees) shall promptly schedule a meeting to resolve the matter.

(b) If a State does not request a hearing in a timely fashion as provided in paragraph (a) of this section, the Administrators shall forward the proposed determination to the Secretary. Upon approval by the

Secretary, the provisions of § 659.17(a) shall take effect immediately.

(c) If a State requests a hearing, the Secretary shall expeditiously convene a hearing on the record, which shall be conducted according to the provisions of the Administrative Procedure Act, 5 U.S.C. 551 *et seq.* Based on the record of the proceeding, the Secretary shall determine whether the State is in nonconformity with this part. If the Secretary determines that the State is in nonconformity, the provisions of § 659.17(a) shall take effect immediately.

(d) If a State fails to meet the compliance standards set forth in § 659.17(b), the Administrators shall notify the Governor of the State of the nonconformity and of the proposed amount of the reduction in apportioned funds. The Governor shall also be informed that within 30 days from the date of the letter the State may request a delay in the penalty on the basis of hardship pursuant to § 659.17(c). While no hearing shall be extended on the question of nonconformity, the State may request an informal meeting to discuss the proposed amount of the withholding and the hardship request, if any. In the event of a request for such an informal meeting, the State and the Administrators (or designees) shall promptly schedule a meeting to resolve the matter. No later than 60 days following the meeting, a final determination shall be made with regard to the amount of the withholding and the hardship request, if any.

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Chapter

I	INTRODUCTION . . . . .	
	Background . . . . .	
	Purpose . . . . .	
	Legislation . . . . .	
	Objective . . . . .	
	Development and Documentation of Sampling Plan . . . . .	
II	SAMPLING PLAN PREREQUISITES . . . . .	
	Functional Grouping of Highways . . . . .	
	Miles of Highway with a 55 M.P.H. Speed Limit . . . . .	
	Distribution of Travel (VMT) on Highways with a 55 M P H. Speed Limit . . . . .	
III	SAMPLING GUIDELINES . . . . .	
	Overview of Sampling Plan . . . . .	
	Statistical Criteria for Sample Design . . . . .	
	Length of Monitoring Period for Individual Sampling Sessions . . . . .	
	Minimum Number of Statewide Sampling Locations . . . . .	
	Minimum Sample Size Based on Accuracy Requirement . . . . .	
	Minimum Sample Size Based on Coverage of Population Sampled . . . . .	
	Allocation of Sampling Locations by Highway Functional Grouping . . . . .	
	Selection of Highway Sample Segments . . . . .	
	Construction of the Sampling Frames . . . . .	
	Selection of Sample Segments . . . . .	
	Development of Annual Sampling Plans . . . . .	
IV	EQUIPMENT . . . . .	
	Nonrecording Equipment (Radar) . . . . .	
	Recording Equipment . . . . .	
V	DATA COLLECTION . . . . .	
	Organization . . . . .	
	Scheduling the Data Collection . . . . .	
	Field Data Collection . . . . .	
	Review Highway Conditions . . . . .	
	Location of Monitoring Station . . . . .	
	Procedures for Obtaining and Recording Data . . . . .	
	1. Recording Equipment . . . . .	
	2. Nonrecording Equipment . . . . .	
VI	DATA ANALYSIS AND SAMPLE DESIGN EVALUATION . . . . .	
	Computation of Statistics Related to the Percentage Exceeding 55 M.P.H. . . . .	

SPEED MONITORING PROGRAM  
PROCEDURAL GUIDE  
for the  
NATIONAL MAXIMUM SPEED LIMIT



U.S. Department of Transportation  
Federal Highway Administration  
Program Management Division  
Procedural Development Branch  
Washington, D.C. 20590

ChapterVI

## Percentage Exceeding 55 M.P.H. by Highway

Grouping . . . . .	1
Statewide Percentage Exceeding 55 M.P.H. . . . .	2
Standard Error of Estimates by Highway Grouping . . . . .	3
Statewide Standard Error Estimate . . . . .	4
Accuracy of Statewide Estimates . . . . .	5
Sample Size Determination Based on Data Analysis . . . . .	6
Computation of Other Statistics . . . . .	7
Session Average or Mean Speed . . . . .	8
Session Median Speed . . . . .	9
Session 85th Percentile Speed . . . . .	10
Highway Functional Grouping and Statewide Estimates . . . . .	11
Specialized Analysis . . . . .	12

VII

## REPORTING RESULTS . . . . .

Appendix

## A Surface Transportation Act of 1978

## B Random Number Table

I. INTRODUCTIONBACKGROUND

The national 55 m.p.h. speed limit was first instituted as a temporary conservation measure in response to the severe fuel shortage that occurred in late 1973. The significant reduction in travel speeds and the accompanying decline in traffic fatalities prompted Congress to establish the national 55 m.p.h. speed limit as a permanent measure. The Federal-Aid Amendments of 1974 made annual State enforcement certification a prerequisite for approval of Federal-aid highway projects. Summary data from comprehensive speed monitoring programs have been part of these annual State certifications.

The "Procedural Guide for Speed Monitoring," issued in September 1975, provided guidelines for monitoring speeds to determine the level of motorist compliance with the speed limit. Data were to be collected on level, tangent highway sections under "free-flow" conditions. The original speed monitoring procedures were designed to produce statistics for each of five highway types in a State. Predictably, a desire arose for statewide statistics representative of conditions on all highway types. Methods for calculating statewide statistics varied among the States, making the value of State-to-State comparisons questionable.

Slowly declining compliance with the 55 m.p.h. speed limit and increasing accident and fatality rates prompted the Department of Transportation (DOT) to recommend and the Congress to approve significant changes in the speed limit legislation in 1978. The Highway Safety Act of 1978 provides for both withholding Federal-aid highway funds and awarding incentive grants based on speed compliance data submitted annually. The major data requirement in each State is now an estimate of the percent of motor vehicles exceeding 55 m.p.h. which is representative of travel on roads and streets having legal speed limits of 55 m.p.h. "Interim Speed Monitoring Procedures," issued in December 1978, contains instructions for collecting and reporting speed information on these roads and streets for fiscal year 1979.

PURPOSE

The speed monitoring program is primarily intended to provide reliable data to be included in a State's annual certification of 55 m.p.h. speed limit enforcement. In addition, the data may be used to evaluate:

Table I-1  
Statutory Level of Speed Limit Compliance  
for Sanctions or Incentive Grants

For Period Ending	Sanctions		Incentive Grants	
	% Exceeding 55 m.p.h.	Amount Withheld <sup>1/</sup>	% Exceeding 55 m.p.h.	Amount of Grant <sup>2/</sup>
9/30/79	>70%	5%	<60%	10%
9/30/80	>60%	5%	<50%	10%
9/30/81	>50%	5%	<40%	10%
9/30/82	>40%	10%	<30%	10%
9/30/83 and thereafter	>30%	10%	<20%	10%

<sup>1/</sup>Federal-aid highway funds under Sections 104 (b) (1), 104 (b) (2), and 104 (b) (6) of Title 23 (excluding Interstate).

<sup>2/</sup>Incentive grant shall be equal to 10% of the apportionment made under Section 402 (c). Grants may be used for carrying out any provision of Section 402, Title 23.

- Motorist compliance with the 55-m.p.h. speed limit;
- The effectiveness of various enforcement strategies;
- The effectiveness of various public awareness programs; and
- Speed trends.

The 1978 legislation necessitated major changes from earlier monitoring programs. Procedures presented in this manual include:

- Requirements that a statewide figure for "percent of motor vehicles exceeding 55 m.p.h." be developed that represents statewide travel on all systems of highways with limits of 55 m.p.h., not just for individual systems.
- "Free-flow" will no longer be the only condition monitored. Speed statistics must be representative of all travel; thus, all vehicles passing a monitoring station during the observation period must be measured.
- Speeds may now be monitored on other than level, tangent sections of highway.
- Previously, speed monitoring was conducted under rather ideal weather conditions. Although future monitoring during snow conditions is discouraged, wet, damp or rainy weather will no longer be disqualifying.

#### LEGISLATION

Section 205 of the "Surface Transportation Assistance Act of 1978" (Title II known as the Highway Safety Act of 1978) is the basis for speed monitoring activities related to the national maximum speed limit (55 m.p.h.) (see Appendix A). Table I-1 summarizes required levels of speed limit compliance and the consequent Federal-aid withholding or incentive grants. The speed monitoring guidelines presented in this manual outline a statistical sampling approach which will provide speed data with an accuracy reasonable for administering the law.

#### OBJECTIVE

The objective of this manual is to establish a valid statistical method of measuring a sample of vehicle speeds on a sample of highways in order to comply with the requirements specified in Section 154 of Title 23, United States Code, as amended. The law defines compliance in terms of the statewide "percentage of motor vehicles exceeding 55 m.p.h." on public highways with speed limits of 55 m.p.h. Therefore, the main objective of the speed monitoring program is to estimate this percentage with sufficient accuracy to allow a determination of compliance.

## II. SAMPLING PLAN PREREQUISITES

The three types of data that must be assembled before a sampling plan can be developed are:

1. Functional class groupings of highways;
2. Miles of highway, by functional grouping, with a 55 m.p.h. speed limit; and
3. Distribution of vehicle miles of travel, by functional grouping, on highways with a 55 m.p.h. speed limit.

### FUNCTIONAL GROUPINGS OF HIGHWAYS

The functional class grouping of highways will be used in the speed monitoring program to distribute the monitoring effort. Public highways will be stratified based on the functional classification defined in the FHWA publication Highway Functional Classification, Concepts, Criteria and Procedures. Some of the functional classes have been combined. The roadways to be monitored will be limited to those with a legal 55 m.p.h. speed limit. As a practical matter it has been administratively determined that any facilities functionally classified as "local" and any unpaved roads with a 55 m.p.h. speed limit shall be excluded from the speed monitoring program. (The use of speed monitoring equipment on unpaved facilities is generally impractical and the relative amount of travel on local facilities is quite small.) The groupings of functional classes of highways for the speed monitoring program are:

#### Urban

- Interstate
- Other Freeways and Expressways and Other Principal Arterials
- Minor Arterial Street System and Collector Street System

#### Rural

- Interstate
- Other Principal Arterials and Minor Arterial Road System
- Collector Road System

### MILES OF HIGHWAY WITH A 55 M.P.H. SPEED LIMIT

Miles of highways with a 55 m.p.h. speed limit will be used in the random selection of speed monitoring locations. Mileage by functional system has

However, an estimate of the percentage of vehicles exceeding 55 m.p.h. is not sufficient to quantify the overall statewide distribution of speeds. Other important characteristics that may indicate the level of enforcement or public compliance are average speed, median speed, percentages exceeding 60 or 65 m.p.h., etc.

The legislation is very specific that the percentage exceeding 55 m.p.h. is the statistic to be used in judging compliance. In order to estimate the distribution of speeds, it is necessary to collect somewhat different data than is required to estimate the percentage exceeding 55 m.p.h. The accuracy of these other statistics that may be developed need not require as high a level of accuracy and, therefore, is not a controlling factor in designing a sampling plan.

### DEVELOPMENT AND DOCUMENTATION OF SAMPLING PLAN

Following the guidelines in this manual, each State should develop a speed sampling and analysis plan for approval by the FHWA Division Administrator. The plan should be reviewed annually and updated as conditions and new data indicate. As a minimum, the initial plan should include:

- Functional grouping of highways to be used;
- Miles of highway with a 55 m.p.h. speed limit, by functional group;
- Distribution of travel (VMT or DVMT) on highways with a 55 m.p.h. speed limit;
- Sources of speed data used in calculating sample size (default values or data from previous monitoring);
- Number of sampling locations and sessions and their distribution by system and geographic area;
- Type and capabilities of speed measuring equipment to be used;
- Data collection schedule; and
- Any deviation from analysis methods recommended in this manual.



been determined in conjunction with the Federal-aid system realignment in 1976 and was reported to FHWA as part of the 1976 National Highway Inventory and Performance Study (NHIPS). During 1979, similar data are being prepared by the States as part of the Highway Performance Monitoring System (HPMS). Most States report mileage by functional classification under FHWA's Mileage Facilities Reporting System (MFRS). Determining the miles of highway in each grouping of functional highway classes should be a relatively straightforward process. The next step is to determine what proportion of the paved mileage in each grouping is subject to the 55 m.p.h. speed limit. This can be accomplished by reviewing roadway section logs or other inventory records that provide speed limit by roadway segment. It may be desirable to display this information on a State map for reference later.

#### DISTRIBUTION OF TRAVEL (VMT) ON HIGHWAYS WITH A 55 M.P.H. SPEED LIMIT

The VMT by functional system will be used to distribute the data collection effort and in the calculation of the statewide-percent of vehicles exceeding 55 m.p.h. The VMT by functional system was reported in conjunction with several national studies. It can also be developed from data currently reported by highway functional classification under the Mileage Facilities Reporting System and as part of the Highway Performance Monitoring System. A third source of travel estimates by functional system is the data used by States to prepare the TA-1 table for FHWA's Development of travel estimates by the highway functional classification groupings used in the speed monitoring program becomes basically a process of addition. Determining what proportion of VMT occurs on paved highways subject to the 55 m.p.h. speed limit by highway functional grouping becomes the next step. Building on the data base established for determining the mileage of highways with a 55 m.p.h. speed limit is one possible approach to estimate such travel. In States with relatively even distributions of VMT, an approximation of the proportion of travel within each of the functional groupings of highways with 55 m.p.h. speed limits may be derived by assuming that the VMT on 55 m.p.h. facilities is proportional to the mileage on 55 m.p.h. facilities. Therefore, the proportion of miles of highway with 55 m.p.h. speed limits within the functional grouping could be used as a basis for estimating the VMT within each functional grouping occurring on 55 m.p.h. speed limit roadways.

The next step is to estimate the statewide proportion of VMT on facilities with a 55 m.p.h. speed limit for each of the six highway classification groupings. The proportion of VMT for an individual classification grouping is computed by obtaining the VMT of all the roads with a 55 m.p.h. speed limit in that grouping and dividing this figure by the total VMT of all roads with a 55 m.p.h. limit in the State.

1/Travel and Accident Reporting Form 1

Table II-1 contains an estimate by State of the proportion of VMT on 55 m.p.h. speed limit highways by functional class. These data were extracted from the sample section data submitted by the States to FHWA as part of the NHIPS study. The data do not reflect any changes in speed limits and travel distribution occurring since 1975.

Table II-2 summarizes the prerequisite data that will be needed to develop the statewide speed monitoring sampling plan.

Table II-1

Estimated Proportion of VMT By Functional Grouping  
for Highways with a 55 M.P.H. Speed Limit<sup>1/</sup>

State	Urban			Rural		
	Interstate	Other Freeway & Expressways and Other Principal Arterials	Minor Arterial Street System and Collector Street System	Interstate	Other Principal Arterials and Minor Arterial Road System	Collector Road System
ALABAMA	0.072	0.038	0.014	0.137	0.431	0.308
ALASKA	—	—	—	—	—	—
ARIZONA	0.124	0.007	0.000	0.385	0.307	0.177
ARKANSAS	0.084	0.020	0.000	0.204	0.448	0.244
CALIFORNIA	0.294	0.314	0.006	0.105	0.182	0.099
COLORADO	0.144	0.066	0.000	0.261	0.386	0.143
CONNECTICUT	0.548	0.213	0.000	0.141	0.098	0.000
DELAWARE	0.303	0.047	0.000	0.081	0.569	0.000
FLORIDA	0.168	0.158	0.002	0.125	0.442	0.105
GEORGIA	0.171	0.031	0.000	0.230	0.338	0.230
HAWAII	0.777	0.014	0.000	0.021	0.154	0.034
IDAHO	0.045	0.005	0.004	0.304	0.354	0.288
ILLINOIS	0.278	0.052	0.025	0.168	0.299	0.178
INDIANA	0.164	0.049	0.002	0.251	0.385	0.149
IOWA	0.049	0.000	0.000	0.213	0.536	0.202
KANSAS	0.084	0.018	0.000	0.186	0.523	0.189
KENTUCKY	—	—	—	—	—	—
LOUISIANA	0.117	0.024	0.007	0.153	0.339	0.360
MAINE	0.075	0.040	0.000	0.699	0.186	0.000
MARYLAND	0.507	0.183	0.008	0.240	0.061	0.001
MASSACHUSETTS	—	—	—	—	—	—
MICHIGAN	0.141	0.269	0.014	0.107	0.255	0.214
MINNESOTA	0.208	0.080	0.007	0.319	0.388	0.178
MISSISSIPPI	0.000	0.000	0.000	0.179	0.547	0.274
MISSOURI	0.187	0.094	0.001	0.194	0.320	0.204
MONTANA	0.015	0.001	0.001	0.305	0.529	0.149
NEBRASKA	0.069	0.007	0.000	0.243	0.607	0.074
NEVADA	0.084	0.055	0.000	0.383	0.378	0.100
NEW HAMPSHIRE	0.146	0.072	0.000	0.341	0.413	0.028
NEW JERSEY	0.283	0.414	0.010	0.048	0.205	0.038
NEW MEXICO	0.104	0.028	0.001	0.354	0.398	0.115
NEW YORK	—	—	—	—	—	—
NORTH CAROLINA	0.052	0.069	0.000	0.134	0.289	0.456
NORTH DAKOTA	0.209	0.008	0.000	0.220	0.596	0.145
OHIO	0.285	0.073	0.006	0.174	0.195	0.265
OKLAHOMA	0.129	0.039	0.006	0.169	0.408	0.249
OREGON	0.130	0.035	0.001	0.248	0.417	0.169
PENNSYLVANIA	0.107	0.113	0.013	0.221	0.382	0.164
RHODE ISLAND	—	—	—	—	—	—
SOUTH CAROLINA	—	—	—	—	—	—
SOUTH DAKOTA	0.019	0.005	0.000	0.298	0.536	0.142
TENNESSEE	0.184	0.097	0.000	0.274	0.388	0.057
TEXAS	0.221	0.169	0.004	0.155	0.251	0.200
UTAH	0.293	0.026	0.009	0.337	0.259	0.076
VERMONT	0.042	0.002	0.000	0.843	0.113	0.000
VIRGINIA	0.137	0.081	0.005	0.192	0.379	0.206
WASHINGTON	0.304	0.072	0.000	0.177	0.318	0.129
WEST VIRGINIA	0.064	0.019	0.001	0.171	0.373	0.372
WISCONSIN	0.095	0.071	0.001	0.145	0.460	0.228
WYOMING	0.029	0.001	0.000	0.457	0.445	0.068
PUERTO RICO	0.00	0.556	0.000	0.000	0.444	0.000

<sup>1/</sup> These factors calculated from 1975 mileage, ADT, and speed limit data submitted for the NHIPS.

Table II-2

## Sampling Plan Prerequisite Data

Functional Grouping	Prerequisite Data	Miles of Roadway	Miles of Roadway with 55 M.P.H. Limits	Total DVMT	DVMT on Roadways with 55 M.P.H. Limits	Proportion of Statewide DVMT on Highways with 55 M.P.H. Limits
URBAN						
Interstate						
Other Freeways and Expressways and Other Principal Arterials						
Minor Arterial and Collector Street Systems						
Urban Total						
- RURAL						
Interstate						
Other Principal Arterials and Minor Arterial Road System						
Collector Road System						
Rural Total						
Statewide Total						

1/Proportion of statewide DVMT on highways with a 55 m.p.h. speed limit calculated as the DVMT on facilities in that functional group with a 55 m.p.h. speed limit divided by the statewide total DVMT on highways with a 55 m.p.h. speed limit.

### III. SAMPLING GUIDELINES

This chapter presents a sampling plan which has been designed to monitor the speeds of all vehicles traveling on paved arterial and collector roads with a 55 m.p.h. speed limit. Particular attention is given to statistical validity and to the applicability of the monitoring system to States of widely varying sizes and geographical characteristics.

The process of sampling design may be conveniently divided into the following steps:

- Overview of sampling plan;
- Statistical criteria for sample design;
- Length of monitoring period for individual sampling sessions<sup>1/</sup>;
- Minimum number of statewide sampling locations;
- Allocation of sampling locations by highway functional groupings;
- Selection of highway sample segments; and
- Development of annual sampling plans.

Each one of these steps is discussed in detail and examples are provided where appropriate.

#### OVERVIEW OF SAMPLING PLAN

The sampling plan developed to meet the required objectives of the speed monitoring program is in principle very similar to the one introduced in the "Procedural Guide for Speed Monitoring" published in September of 1975. It consists of a two-stage sample. The first stage is a stratified sample from the population of highway segments in each State. The total number of segments to be sampled in each State is based on the variance of the percentage of vehicles exceeding 55 m.p.h. among locations within the State. The number of segments to be sampled in each stratum (highway functional grouping) is based on the relative vehicle miles of travel (VMT or DVMT) on roads subject to a 55 m.p.h. speed limit. The second stage is a sample of vehicle speeds taken from the total population of speeds of vehicles passing the specific locations.

<sup>1/</sup> Distinction is made between sampling sessions and sampling locations. A session consists of a single period of monitoring at a particular place (sampling location). For the purposes of this study, up to four sampling sessions may be conducted at one sampling location.

A major revision from the earlier speed monitoring program consists of a new highway grouping scheme described in Chapter II, which has been introduced because of the need for standardized highway data collection programs. The new scheme will also simplify the process of obtaining the VMT estimates necessary for the sample allocation and later for the development of statewide percentage estimates.

The approach employed in previous speed monitoring programs has been to obtain the same level of accuracy for each of the several highway systems or groupings. Because of the requirements included in the 1978 legislation, the new approach will allow the accuracy to vary in the different functional groupings as long as the target accuracy of the statewide percentage exceeding 55 m.p.h. attains the required level.

Even though the percentage of all vehicles exceeding 55 m.p.h. is the characteristic on which the certification will be based, this percentage is by itself not sufficient to quantify the actual distribution of speeds. As an example of how data beyond the percentage can be useful to a State in analyzing speed patterns, two possible situations are analyzed. In the first situation, 75 percent of the travel is exceeding 55 m.p.h. and the mean speed is 56 m.p.h. In the second, 60 percent is exceeding 55 m.p.h. and the mean speed is 62 m.p.h. The mean speeds indicate that in the first case increased enforcement will probably not significantly affect the result, while in the second case increased enforcement could have a significant effect.

A conflict arises when trying to attain the objectives of a highly reliable estimate of the percentage exceeding 55 m.p.h. which requires a very large amount of data, while also trying to obtain other relevant statistics needed to quantify the speed population which do not require high reliability levels. A compromise solution consisting of two different levels of data collection has been devised to attain these two different objectives. The sampling plan will consist of a statewide number of sampling locations which will be classified into two groups: standard sampling locations and control sampling locations.

Standard Sampling Locations.--A standard sampling location is by definition a location where a minimum of one standard sampling session is required per year. A standard sampling session consists of a monitoring period at least 24 hours in length where only two data items are required, the number of vehicles exceeding 55 m.p.h. and the total number of vehicles passing the location during the monitoring period.

Control Sampling Locations.--Control sampling locations will be sampled once each quarter in order to measure seasonal variation, to collect additional speed data, and to provide a basis for trend determination. At least 20 percent of the statewide number of locations should be

#### LENGTH OF MONITORING PERIOD FOR INDIVIDUAL SAMPLING SESSIONS

Estimating the percentage of vehicles exceeding 55 m.p.h. with the target accuracy at a 5 percent significance level is the only constraint in the sample size estimation process. The speeds of vehicles passing each location constitute the subpopulation to be sampled. A cluster of these speeds is collected to estimate the percentage exceeding 55 m.p.h. at that particular location. In order to estimate the speeds of vehicles passing each location during the year, it would be necessary to obtain a complete cluster consisting of the speeds of all vehicles passing the location during the entire year. Because of the enormity of the size of each cluster and the cost involved, it becomes necessary to select a shorter period of time and to assume that measuring the random sample locations consistently throughout the year will balance out the effects of periodic variation. This is why it becomes so important to distribute the sampling in the manner presented in Chapter V.

A 24-hour monitoring period has been selected for the following reasons:

- Accounts for the varying traffic conditions affecting speeds;
- The within-cluster variation will not allow a reduction of the number of locations required even if much longer periods are used;
- Minimizes cost in terms of the combination of sampling locations required and the need for equipment;
- Facilitates scheduling of data collection; and
- Allows aggregation of estimates by day of week, month, etc.

The fact that the number of vehicles sampled during the 24-hour monitoring period will vary greatly among sessions is to be expected and will be accounted for in the estimation process presented in Chapter VI.

#### MINIMUM NUMBER OF STATEWIDE SAMPLING LOCATIONS

Two concepts will be used in determining the statewide location sample size. The two are accuracy of statistical estimates and coverage of population sampled. The standard statistical requirements for determining statewide sample size, based on the accuracy approach presented here, are dependent primarily on the statewide standard deviation of the parameter (percentage exceeding 55 m.p.h.) rather than on mileage or vehicle miles of travel. Since preliminary studies indicate this figure to be similar in the various States, the resultant sample sizes will also be nearly the same with the exception of very small States where the finite population

sampled as control locations, with a minimum of one in each applicable highway grouping.<sup>1/</sup> Data collected at control sessions will consist of the individual speeds of all vehicles passing the location during the monitoring period, or alternatively the speeds classified in small ranges (2 or 5 miles per hour). Data from control sessions will be used to estimate the percentage exceeding 55 m.p.h. and also to provide the data to estimate the mean speed, median speed, percentage exceeding 60 m.p.h., percentage exceeding 65 m.p.h., 85th-percentile speed, etc.

The advantage of this double approach involving different levels of data collection is that it concentrates the data collection on the required characteristic while minimizing the level of effort and the need for expensive equipment.

#### STATISTICAL CRITERIA FOR SAMPLE DESIGN

The following criteria are established as the minimum basic requirements of the sample design:

1. The target accuracy of the statewide percentage exceeding 55 m.p.h. must be sufficient to significantly detect either a positive or negative difference greater than 2.5 percent.
2. A significance level of 5 percent shall be used for all estimates.<sup>2/</sup>
3. Statistical estimates of the percentage exceeding 55 m.p.h. derived from data collected as part of this program will meet the requirements of criteria 1 and 2 on an annual basis.

Criteria 1 and 2 imply that based on the sample design the data collected should be sufficient to estimate a 95 percent one-sided confidence interval of 2.5 percent. Assuming that the target accuracy is obtained, this means that a percentage exceeding 55 m.p.h. greater than 72.5 percent will be judged significantly larger than 70 percent.

Criterion 3 states that only after a full year's data are collected will the estimates be expected to attain the required accuracy. However, because of the procedure by which data will be collected, it will be possible to obtain quarterly estimates which, of course, will have a much lower accuracy level. Assuming that one-fourth of the annual sample is taken each quarter, the quarterly estimates of the percentage exceeding 55 m.p.h. will have an approximate one-sided accuracy level of 5 percent.

<sup>1/</sup>The 20 percent represents an administrative decision and is based on providing sufficient sessions to estimate the remaining characteristics of interest and seasonal differences.

<sup>2/</sup>A significance level of 5 percent is equivalent to a 95 percent confidence interval.

correction will exert more influence. This means that statistically the sizes of the speed populations of different States influence very little the sample sizes required for estimation. Having nearly equal samples for the different States would seem not to provide data that are representative of the widely varying travel characteristics found among the States.

The concept of coverage of population sampled was introduced to answer the above concern, to provide a balanced work load among the States, and to provide a safety margin of increased accuracy for the larger States with larger mileage and VMT.

In order to incorporate these two concepts into the sampling plan, it was decided to determine the minimum sample size needed by each State under each of the two concepts and then to select the larger of the two numbers as the statewide minimum sample size. In this manner the accuracy requirement will always be met and the sample size will be sensitive to the varying amounts of travel in the States.

Minimum Sample Size Based on Accuracy Requirement.--The sampling scheme consists of two stages of sampling. The first stage consists of a statewide sample of locations selected randomly from the population of highway segments with a 55 m.p.h. speed limit. The statewide number of sampling locations is stratified by highway functional grouping on the basis of their relative travel (VMT or DVMT). In the second stage, a 24-hour cluster sample is collected from the subpopulation of speeds of vehicles passing each location during the year.

To determine the number of locations required to obtain the desired statewide accuracy, it is necessary to obtain a preliminary estimate of the standard deviation of the parameter to be estimated. This is an important step since the standard deviation greatly affects the sample size. Underestimating the standard deviation will result in estimates that will not meet the specified accuracy requirements. Most existing data available in the States represent "free-flow" traffic conditions and were not collected under the present highway stratification scheme. Table III-1 contains default values for the statewide and highway strata standard deviation that should be used for the first year's sample design. States wishing to develop and use their own estimates of standard deviations instead of the default values must document and make available for review and approval the procedure by which the estimates were derived.

1/To develop these values, a State must have collected all-vehicle data from a sufficiently large random sample of locations during a 1-year period and based on 24-hour monitoring using a cluster sample approach. The procedure would be comparable to having collected data using the default values for 1 year and applying the procedure in Chapter VI.

Table III-1

Default Values for the Standard Deviation of the Percentage Exceeding 55 M.P.H. on Roads with a 55 M.P.H. Speed Limit

Highway Functional Grouping	Default Values <sup>1/</sup>
<u>URBAN</u>	
Interstate	10.0
Other Freeways and Expressways and Other Principal Arterials	12.0
Minor Arterial Street System and Collector Street System	12.0
<u>RURAL</u>	
Interstate	8.0
Other Principal Arterials and Minor Arterial Road System	12.0
Collector Road System	12.0
<u>STATEWIDE</u>	12.0

1/ These default values were estimated based on data from selected States using all-vehicle 24-hour monitoring, and were adjusted to reflect the revised highway stratification.

After a full year's data are collected the procedure presented in Chapter VI should be used to develop the required sample sizes for the following year's plan. To determine the approximate number of statewide locations required to estimate the percentage of vehicles exceeding 55 m.p.h. for the first year's plan use the following formulas<sup>1/</sup>:

$$n_o = Z^2 \cdot .95 \cdot s^2(p) / d^2$$

$$\text{and } n_p = \frac{n_o}{1 + n_o / N}$$

where  $n_o$  = sample size without correction for finite population;

$Z \cdot .95$  = value of standard normal statistic with level of significance ( $\alpha$ ) .05;

$s(p)$  = statewide standard deviation of the percentage exceeding 55 (See Table III-1);

$d_p$  = accuracy desired (2.5);

$n_p$  = statewide minimum sample size under accuracy concept; and

$N$  = number of statewide highway segments subject to the 55 m.p.h. speed limit (See section describing frame construction).

<sup>1/</sup> The effect of clustering on sample size is ignored here. It will be accounted for as needed in Chapter VI.

The second equation will introduce reductions in sample size for small States, and in statistical terminology is usually defined as the finite population correction.

#### Example III-1.

Compute the sample size required under the accuracy concept for a State with a frame of 1,500 segments subject to the 55 m.p.h. speed limit and using the default standard deviation (12.0).

$$n_o = (1.645)^2 (12.0)^2 / (2.5)^2 = 63$$

$$n_p = 63 / (1 + 63 / 1500) = 61$$

Therefore, the required sample size is 61 locations. Now, to examine the effect the standard deviation has on these formulas, let's recompute the sizes needed for standard deviations of 10.0 and 20.0 respectively.

$$n_o = (1.645)^2 (10.0)^2 / (2.5)^2 = 44$$

$$n_p = 44 / (1 + 44 / 1500) = 43$$

$$\text{and } n_o = (1.645)^2 (20.0)^2 / (2.5)^2 = 174$$

$$n_p = 174 / (1 + 174 / 1500) = 160$$

The sample size for the second case is almost four times that of the first. As this example has shown, the sample size is highly dependent on the statewide standard deviation of the percentage exceeding 55 m.p.h.



The following formula is then used to accomplish the allocation:

$$n_h = n_p w_h$$

where  $n_h$  = number of locations allocated to the

$h$ th functional highway grouping;

$n_p$  = statewide minimum sample size  
(number of monitoring locations); and

$w_h$  = relative travel (VMT or DVMT) on  
roads subject to the 55 m.p.h. speed  
limit in the  $h$ th highway grouping  
(See Chapter II).

This formula proportions the sample size on the basis of relative travel. States with most of their travel on highways subject to the 55 m.p.h. speed limit in one or two highway groupings will find that this method will concentrate the sampling on those groupings. If there is no travel subject to the 55 m.p.h. speed limit in a particular highway grouping, no sessions will be allocated to that grouping by this procedure.

In order to further simplify the procedures, no locations need to be allocated to any functional grouping with less than one percent of the statewide travel subject to the 55 m.p.h. speed limit ( $w_h$  of 0.01 or less) and any such groupings may be completely disregarded from the speed monitoring program. In these cases, the weights of the remaining highway groupings must be factored to represent the total statewide travel.

#### Example III-3

Allocate a minimum statewide sample size of 120 locations based on the following characteristics:

Highway Grouping (h)	Relative VMT on Roads Subject to 55 M.P.H. Speed Limit ( $w_h$ )
1	0.12
2	0.23
3	0.31
4	0.07
5	0.19
6	0.09

**Minimum Sample Size Based on Coverage of Population Sampled.**—The coverage concept is designed to allocate locations based on the amount of travel (DVMT) subject to the 55 m.p.h. speed limit in the States. This concept is needed to provide a balanced sample size; to compensate for the additional variation which may be present due to larger volume or larger mileage; and for the potential variation in speed enforcement activities of different police departments, districts, or jurisdictions within a State. As an example, if two States with respectively 1,000 and 10,000 miles of highway subject to the 55 m.p.h. speed limit were sampled using 100 locations, then the first State would have one location for each 10 miles of highway while the second would have one for each 100 miles. The coverage of the first State would be 10 times that of the second. Even though the initial statistical model used for both States should result in similar accuracy of the estimates, the potential for variation is much larger in the second State. The method presented here attempts to compensate for this fact. In addition, the coverage concept provides a safety margin for the use of the default standard deviations and for the effects of clustering on sample size.

The minimum sample size needed under the concept of coverage shall be computed by dividing the statewide total daily vehicle miles of travel (DVMT) subject to the 55 m.p.h. speed limit by 1,000,000. For example, the minimum sample size under this concept for a State with 40 million DVMT on highways subject to the 55 m.p.h. limit would be 40 locations. The divisor (1,000,000) in the procedure represents an administrative decision to ensure that speed data represent the wide range of travel, topography, geometrics, enforcement, etc. present in the various States. The next example illustrates the statewide sample size selection procedure for a hypothetical State.

#### Example III-2

Determine the number of monitoring locations required by a State with 80 million DVMT on roads subject to the 55 m.p.h. limit and with a frame size of 1,500 segments. From Example III-1, the number of locations under the accuracy concept is 61 locations. Under the coverage concept the number is 80 (80,000,000 / 1,000,000). The larger of the two is 80, and this then becomes the statewide minimum sample size.

#### ALLOCATION OF SAMPLING LOCATIONS BY HIGHWAY FUNCTIONAL GROUPING

Having determined the statewide number of locations needed, we proceed to allocate them by highway grouping. To do this, it is necessary to estimate the relative travel (VMT or DVMT) carried by the segments with a 55 m.p.h. speed limit in each functional grouping (See Chapter II).

Using the formula for  $h = 1$ ,  $n_1 = 120$  ( $n_{11} = 13$ ), the results are summarized below:

Highway Grouping	Sample Size ( $n_h$ )
1	13
2	28
3	37
4	8
5	23
6	11
	120

#### SELECTION OF HIGHWAY SAMPLE SEGMENTS

The final step in the sample design involves the selection of locations where the sampling sessions will take place. The process can be subdivided into two steps:

1. Construction of sampling frames.
2. Selection of sample segments.

Construction of the Sampling Frames.—A sampling frame consists of a listing of every individual item in the population to be sampled so that a probability assignment can be made. The ideal way of sampling the population of speeds would be to construct a frame consisting of the speeds of vehicles traveling on each highway system during the year, and then to take a simple random sample of speeds. This is, of course, impossible. Therefore, other more practical alternatives such as cluster sampling have to be used.

To construct a frame of highway segments, it is necessary to identify the mileage of every highway with a 55 m.p.h. speed limit in each highway functional grouping (See Chapter II). Then subdivide the mileage into 5-mile segments<sup>1/</sup> and assign a unique sequential number to each segment. Individual segments need not be identified at this stage; only a sequential numerical assignment is needed. One such frame should be constructed for each of the functional groupings. The statewide frame size is the total number of 5-mile segments in the State which are subject to the 55 m.p.h. speed limit.

<sup>1/</sup> The determination to use 5-mile segments was a compromise between statistical validity and practical considerations. Statistically, the smaller the segments the more confidence we have in the assumption that conditions affecting speeds in the segment are constant. However, to be of practical use the frame must be of manageable size.

As an option, existing frames with similar segment lengths (either fixed or variable) which may have been constructed for previous studies or inventories may be applicable with or without modification.

Selection of Sample Segments.—In order to meet the two-fold requirements of estimating with the specified accuracy the percentage exceeding 55 m.p.h. and of collecting other important statistics without a reliability constraint, the statewide number of sample locations is divided into standard and control locations. As previously defined, a standard sampling location (and session) requires only the collection of the number of vehicles exceeding 55 m.p.h. and the total number of vehicles passing the location during a 24-hour period. The location of these sessions should be established by a simple random selection without replacement with the help of a table of random numbers<sup>1/</sup>. It is imperative that random selection be used because all formulas presented assume a random selection.

Control sampling locations (and sessions) serve three purposes: to collect 24-hour counts of vehicles exceeding 55 m.p.h. and total number of vehicles, as for a standard session; to collect the individual or groups of speeds of all vehicles passing the location during the 24-hour period to provide other necessary statistics; and to provide an estimate of seasonal variation of speed statistics. Control locations should constitute at least 20 percent of the number of locations in each highway grouping. A minimum of one control location must be monitored in each applicable highway grouping. Control locations are also to be selected randomly from the frame.

The manner and sequence in which the locations, both standard and control, are selected should be documented and retained for future review. It will also be very helpful to plot the locations on a map while the selection process is taking place. This will permit visual inspection of the resulting geographic distribution. In general, because of the size of the frame, the locations will be geographically distributed throughout the State. However, geographical stratification may also be introduced by selecting the locations from geographical subsets of the frame or by any other method that does not affect the randomness of the sample. The analysis presented in Chapter VI ignores the effects of the geographical stratification, but the procedures in that chapter can be easily modified to produce estimates by geographical region.

<sup>1/</sup> See Appendix B for a table of random numbers and instructions.

For smaller States with limited mileage, it is probable that locations will be in close proximity. These locations whether standard or control should be sampled at different times during the year.

#### Example III-4

Construct a frame for the Interstate-rural portion of a State with 160 miles of Interstate with 55 m.p.h. limits.

The frame mapping the actual segments onto a sequential distribution is presented in the following table.

Route	Segment Mileage	Segment	Sequence Numbers
I-95	1-5	1	1
	6-10	2	2
	11-15	3	3
	16-20	4	4
	21-25	5	5
	26-30	6	6
	31-35	7	7
	36-40	8	8
	41-45	9	9
	46-50	10	10
I-25	1-5	1	11
	6-10	2	12
	11-15	3	13
	16-20	4	14
	21-25	5	15
	26-30	6	16
	31-35	7	17
	36-40	8	18
	41-45	9	19
	46-50	10	20
	51-55	11	21
	56-60	12	22
	61-65	13	23
	66-70	14	24

I-44	1-5	1	25
	6-10	2	26
	11-15	3	27
	16-20	4	28
	21-25	5	29
	26-30	6	30
	31-35	7	31
	36-40	8	32

A shorter summary is,

Route	Total Mileage	Number of Segments	Sequential Number of Segments
I-95	50	10	1 to 10
I-25	70	14	11 to 24
I-44	40	8	25 to 32

Assume that the sample size needed for this grouping is 7 locations. Seven numbers between 1 and 32 were selected by using a table of random numbers. The selected segments are listed below.

Random Number	Route	Segment
29	I-44	5
5	I-95	5
9	I-95	9
23	I-25	13
20	I-25	10
17	I-25	7
12	I-25	2

The manner of selection used in this example specified that the first selection was the control location. Therefore, four control sessions (one each quarter) will be conducted on I-44 segment 5, and one standard session in each of the remaining segments.

This is by far an oversimplified example, but it presents the approach which should be followed. Further guidelines as to the location and scheduling of sessions are presented in later chapters.

#### IV. EQUIPMENT

A wide variety of speed measurement devices are available, many of which are oriented toward enforcement applications. These devices may be grouped generally as nonrecording equipment (radar) and automatic speed monitoring equipment. The nonrecording equipment is most useful as a portable device for monitoring periods of relatively short duration. Most automatic speed monitoring equipment can be left unattended at a site for 24 hours or more by utilizing detectors placed either in the pavement (i.e., inductance loops) or on top of the pavement (i.e., rubber tubes, cable sensors, tape switches). This chapter provides a general discussion of the various types of speed monitoring devices available and their applicability to this program. No doubt all States will wish to become familiar with the specific equipment available from the various manufacturers.

##### NONRECORDING EQUIPMENT (RADAR)

For many years nonrecording equipment has been used by police agencies for enforcing speed limits and by highway departments for spot speed planning studies. Free-flow speed monitoring under previous regulations was done largely by nonrecording equipment. Nonrecording equipment is particularly useful for measuring speeds on lower volume facilities or of leading vehicles in platoons.

For speed monitoring under these procedures, however, a number of difficulties may be encountered when using nonrecording equipment. Where the speeds of all vehicles are to be measured, certain operational difficulties arise on high volume highways and where there are two or more lanes in one direction. Nonrecording equipment may not be able to discriminate among vehicles and measure the speeds of all vehicles. Interference can also be caused by opposing traffic in some instances. Visual and electronic detection is another problem faced by nonrecording equipment. In recent years, nonrecording equipment manufacturers have made improvements to avoid detection by motorists. Improvements include an additional group of transmitting frequencies (K-band) and devices that transmit either periodically or on command. Optional add-on equipment now available includes microprocessors for storing individual vehicle speeds and for calculating and displaying selected statistics at the conclusion of a monitoring session. At present this equipment does not provide a permanent record of the individual vehicle speeds. Data storage capacity may also limit the monitoring session duration on higher volume roads. Speeds measured by nonrecording equipment must be corrected for the approach angle of traffic relative to the nonrecording equipment unit. If this angle is 15 degrees or more, the correction can be significant.

The selection of 24-hour clusters of speeds also assumes that the date selected is random. However, for the sake of simplicity, practicality, and to allow for an orderly schedule, it has been assumed that the scheduling procedures presented in Chapter V will satisfy this requirement.

At the time these instructions are being written, the FHWA and the States are beginning the implementation of the Highway Performance Monitoring System (HPMS). The possibility exists that selection of the speed monitoring sample as a subset of the much larger HPMS sample may be a feasible alternative. This topic will be further examined in the future. For information about the HPMS, refer to the HPMS Field Implementation Manual listed in the bibliography.

##### DEVELOPMENT OF ANNUAL SAMPLING PLANS

The procedures presented in this chapter have purposely been designed to attain the required objectives in the face of many unknowns. This has necessitated many assumptions for the development of the initial plans. Major emphasis has been placed on maintaining approaches which are consistent among States, and which provide a basis for equitable decisions. After a complete year's data are available, and thereafter on an annual basis, an evaluation must be made to determine the actual accuracy level obtained. Based on this evaluation, changes should be made to the sampling plan to increase its overall efficiency or to attain the required accuracy. In particular, the statewide standard deviation estimate derived by the procedures in Chapter VI should be used to recompute the necessary sample size under the accuracy concept. If it becomes necessary to increase the sample size, new locations can be randomly selected by the methods described in this chapter. In the same manner, a decrease in sample size may permit a random selection of sessions or locations where monitoring will stop. In any case, the locations selected during the initial plans may be considered permanent locations. Additions or deletions necessitated by increases or decreases in sample size, by speed limit changes, by highway grouping changes, or by other reasons will not affect the location of any sessions selected during the implementation of the initial plan. Annual evaluations should also include an examination of the travel figures (VMT or DVMT) to ascertain their validity and to make updates as needed.

#### RECORDING EQUIPMENT

Recording equipment runs the gamut from relatively inexpensive devices utilizing axle detectors on top of the pavement to more sophisticated devices using inductance loops, which record much more detailed data and to laser detectors. In addition, equipment is available as an add-on to permanent traffic recorder stations (including those on a telemetry system). The requirement for collecting 24 hours of speed data each quarter may warrant expenditure for permanent installation of traffic measuring equipment.

Since the critical statistic to be developed in each State is percent of traffic exceeding 55 m.p.h., the minimum data to be collected at a monitoring site are total number of vehicles and number of vehicles exceeding 55 m.p.h. These minimum data may be collected using axle detectors (pneumatic hoses, tape switches, and cable sensors) and light equipment that records cumulatively the two appropriate vehicle counts. The more expensive machines utilize most detector types including loops and either record each vehicle speed or classify speeds into preset speed ranges, generally 2 or 5 m.p.h. These detectors sometimes have problems, such as when vehicles are stopped over the detector essentially deactivating the system. Data may be recorded on paper or cassette tape. One very new device tallies speeds of all vehicles and multi-axle vehicles by 2 m.p.h. speed groups from 16 to 98 m.p.h., by lane. These more detailed data will have broader application than that required for annual certification. This recording equipment has the potential for rapid accumulation of accurate traffic measurements. All such devices that utilize axle detectors mounted on top of the pavement are dependent on accurate spacing and installation for obtaining satisfactory data.

Table IV-1 summarizes the different types of equipment that might be used to measure vehicle speeds during a monitoring session.

Table IV-1  
Equipment For Measuring Vehicle Speeds

Type of Equipment	Data Obtained	Roadway Detectors	Traffic Condition	Approximate Accuracy	Approximate Cost 1978
Radar	Individual Vehicle Speeds	None	Light	3-4% ± 2 m.p.h.	\$1000
VASCAR	Individual Vehicle Speeds	None	Light	3-4% ± 2 m.p.h.	
Speed Counter	Total Volume Number Exceeding Pre-set Speed	2 Electronic Sensors, Loop Detectors or Road Tubes	Light to Heavy (no stopped traffic)	± 2 m.p.h.	\$550
Dual Speed Counter	Total Volume Multiple Speed Ranges	2 Electronic Sensors, Loop Detectors or Road Tubes	Light to Heavy (no stopped traffic)	± 2 m.p.h.	\$3200
Speed Recorder	Total Volume Number of Vehicles in the Speed Range	2 Electronic Sensors, Loop Detectors or Road Tubes	Light to Heavy (no stopped traffic)	+ 1%	\$3000 to \$10,000
Computerized Speed Recorder	Total Volume Individual Vehicle Speeds Vehicle Classification Vehicle Speeds by Vehicle Classification	2 Electronic Sensors, Loop Detectors or Road Tubes	Light to Heavy (no stopped traffic)	± 1%	\$10,000 and up

## V. DATA COLLECTION

This chapter summarizes the data collection procedures that could be used during the speed monitoring program. It is intended to be a brief outline of basic procedures that should be expanded on by each State in developing its speed monitoring program.

### ORGANIZATION

The program manager or his representative should be responsible for obtaining all speed measurement equipment, other support equipment and personnel. In addition, a detailed schedule should be developed that includes:

- Date/time of equipment setup at each location;
- Date/time of equipment takedown at each location;
- Travel time; and
- Makeup time for equipment malfunction; bad weather, etc.

This schedule should be as comprehensive as possible so that each member of the data collection team knows what work is expected of him. This schedule should be shown to district or local engineers so that data collection does not occur during construction/maintenance activities that might interfere with normal vehicle speeds.

### SCHEDULING THE DATA COLLECTION

Data collection scheduling should be developed to account for the hour of the day, day of the week, month, and season of the year. To account for the hour of the day and the day of the week, all data collection sessions should be 24 hours long and evenly distributed by day of the week. At the control locations one session of data will be obtained each quarter. At standard locations one session of data will be obtained each year. Table V-1 is an example of how to distribute 60 locations. First, the number of control locations in each highway system must be determined ( $20\% \text{ of } 60 = 12$ ). Divide the standard sessions into four equal parts. These four parts represent the four quarters of the year. Within each quarter, all sessions whether standard or control should be evenly distributed by day of the week and by month. In this example 48 standard locations (48 standard sessions) and 12 control locations (48 control sessions) must be evenly distributed throughout the year.

The resulting data collection schedule in Table V-1 provides for four standard and four control sessions every month. The monitoring sessions are further distributed by day of the week. No specific days of the month are selected, therefore leeway is provided for bad weather, equipment malfunctions, etc. Adjustments in sessions by month within a quarter may also be necessary because of severe weather.

As an option, to evenly distributing standard sessions among the four quarters, States having disproportionate quarterly VMT figures (northern States during the winter quarter) may wish to allocate the standard monitoring sessions on the basis of estimated quarterly VMT. In any case, control locations must be monitored once each quarter in order to derive quarterly estimates.



Table V-1

## Example Schedule for Data Collection During Fiscal Year

Number of Sessions

	FIRST QUARTER			SECOND QUARTER			THIRD QUARTER			FOURTH QUARTER		
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MON	1 (1) <sup>1/</sup>	1 (1)		1 (1)		1 (1)		1 (1)	1 (1)		1 (1)	
TUE	1 (1)		1 (1)	1 (1)		1 (1)		1 (1)		1 (1)	1 (1)	
WED	1 (1)		1 (1)		1 (1)	1 (1)		1 (1)		1 (1)		1 (1)
THUR	1 (1)		1 (1)		1 (1)		1 (1)	1 (1)		1 (1)		1 (1)
FRI		1 (1)	1 (1)		1 (1)		1 (1)		1 (1)			1 (1)
SAT		1 (1)		1 (1)	1 (1)		1 (1)		1 (1)		1 (1)	1 (1)
SUN		1 (1)		1 (1)		1 (1)	1 (1)		1 (1)		1 (1)	
TOTAL	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)	4 (4)

Total Number of 96 Sessions

<sup>1/</sup>Number in parenthesis refer to control sessions.

## FIELD DATA COLLECTION

Review Highway Conditions.--When the field personnel arrive at the designated highway segment (5 miles long), they should visually determine the suitability of conditions at the site. Speed monitoring should not be attempted under the following conditions:

- Extreme weather conditions expected during the next 24-hour period (severe rainstorms, heavy snow accumulating or icy roadway);
- Presence of non-routine enforcement activity within the highway section in the next 24 hours; or
- Construction/maintenance activity or other disruptive activities which affect the speed of vehicles passing the site.

If any of these conditions appear to exist within the designated highway section, the field personnel should immediately contact the program manager or his representative so that the session can be rescheduled.

Location of Monitoring Station.--Once the highway section is located, the field crew should drive the section to become familiar with its characteristics and to spot any unusual conditions. A second drive along the section should be made to select the location for the speed monitoring equipment. If this location is to be a control station, the program manager or his representative may want to select the location of the speed monitoring equipment before it is scheduled so that a loop detector or some other type of permanent sensor can be placed in the pavement. Since control stations will be monitored over a long period of time, this may be a cost-effective measure.

Once the location of the speed monitoring station has been decided, the field crew should review the location to avoid any features that could be expected to encourage or discourage vehicle speeds. The location of the speed monitoring station should be representative of typical conditions on the section. Situations to be avoided are:

- Near or on a sharp horizontal curve with a speed advisory plate less than 55 m.p.h. (i.e., greater than 50 curve);
- Steep grades (i.e., greater than 4 percent) not representative of predominant alignment (if predominant alignment is greater than 4 percent, a representative sample of vehicle speeds in both directions of travel should be obtained.);

- Near significant roadway intersection (i.e., less than 1,000 feet) or commercial entrances (e.g., shopping center ingress and egress points); or
- Where other unusual features exist that might influence the speed (e.g., narrow bridge).

It is also extremely important that the monitoring station location match all of the additional location criteria developed by the program manager. The criteria established should be carefully followed in locating all speed monitoring stations since failure to follow these guidelines will result in speed data that are not directly comparable.

Procedures for Obtaining and Recording Data.--The minimum speed data to be obtained at each site shall include a count of all vehicles and of those exceeding 55 m.p.h. in one randomly selected direction of travel. This will enable the calculation of the percent of vehicles exceeding 55 m.p.h. during a 24-hour data collection session. The additional requirement to measure the speed of all vehicles passing the speed monitoring station during the observation period will affect the decision on the type of equipment to be used. The data collection procedure will first be reviewed for the recording equipment then for nonrecording equipment (radar).

1. Recording Equipment.--Since recording equipment varies considerably depending on the manufacturer and model, only general guidelines can be suggested here.

Two types of detectors are available to be placed on the roadways for speed monitoring. The first is the standard loop detector. Loop detectors are permanently placed in the pavement. The second type includes temporary sensors (e.g., tape switch, cable sensors) and other axle detectors. These sensors must be placed on the pavement just before the start of each speed monitoring session. Extreme care is needed in placing the cables on the pavement since all traffic in one direction must be stopped from 1 to 3 minutes to place the cables on the road. The sensors are typically held on the pavement by glue or tape or both. There may be some problems holding the sensors to the pavement during wet or cool weather. Both types of sensors perform well when properly placed on the highway.

Data recorders can be placed at a great distance from the sensors where the recorder can be secured. The deployment of the data recorder with the temporary sensors will take approximately 1 hour. A shorter deployment period would be needed if permanent loop detectors were already in place.

a. Document Speed Monitoring Station—The field data collection crew should take care to document the location, equipment setup, and equipment used. The following information should be included in station setup documentation:

- Location of site
- Station number
- Session number
- Equipment used (so malfunctioning equipment can be identified)
- Field data collection crew names
- Time of arrival at site
- Sketch of site indicating

1. Location of speed monitoring equipment (sensor, recorder, etc.)
  2. Direction of traffic monitored
  3. Geometrics of highway (lane width, shoulder width, etc.)
  4. Other physical features
- Calibration of equipment checklist completed (check manufacturer literature)
  - Time equipment is turned on

Each manufacturer's recommended calibration procedures should be completed before the monitoring session begins. Any discrepancy should be reported to the program manager or his representative. No measurement should be taken with inaccurate equipment.

b. End of Session Procedures—When the crew first arrives, they should determine if the equipment is operating and run all calibration tests and then record the data, if appropriate, on the data collection form. The crew should review the data collected to see if it is reasonable. The speed monitoring equipment should be removed from the road and stored. All forms should be reviewed for completeness, assembled and secured in a single envelope to prevent loss and forwarded to the program manager or his representative.

2. Nonrecording Equipment—Nonrecording equipment is the type of equipment used by most law enforcement agencies and consists of various forms of radar, VASCAR, etc. It will be assumed for this discussion that radar is the most common form of nonrecording equipment.

The radar equipment should be set up and operated in accordance with the manufacturer's instructions, using the procedure discussed in the training sessions. Since the capabilities of radar units vary considerably (e.g., the maximum operating range of some units is 500 feet while others are still accurate at 1,500 feet) depending on the manufacturer and model, only general guidelines can be suggested.

Several types of station layouts are presented in Figures V-1 through V-4. When suitable cover is available (e.g., bridge supports or roadside foliage), method A may be the most appropriate configuration. Under heavy traffic conditions, however, the accurate measurement of vehicles may become complicated.

Method B may be used for situations where sufficient cover for effective concealment is not available. Since the equipment is positioned on the opposite side of the road, motorists will be less inclined to react.

Method C is perhaps the most common configuration used for enforcement. This method should not be used unless ample screening is available to hide the crew and measurement equipment. Radar units effectively concealed in mailboxes or other containers can be used. For States in which recreational or highway maintenance vehicles have been shown to not influence drivers' speeds, method C may be used in conjunction with appropriately disguised State vehicles containing the measurement equipment.

Although method D can be effectively applied to any site for which a highway overpass is available, it is most suitable for multilane freeways. It is extremely important, of course, that suitable areas to place the equipment (e.g., sidewalk) and to park the vehicle that powers the radar unit be available to prevent safety hazards to the crew or substantial inconvenience to motorists on the bridge.

The field crew should choose the most appropriate configuration to monitor speeds at each station. At a minimum, the station must have the following characteristics:

- Able to accurately measure speeds of all vehicles in all lanes in the designated direction;
- Concealment such that motorists do not slow down before their speeds are measured (CB radios and radar detectors must not have any effect on speeds of vehicles monitored); and

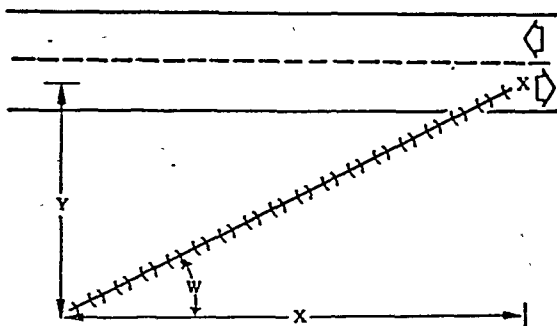


Figure V-1 Radar Setup - Method A

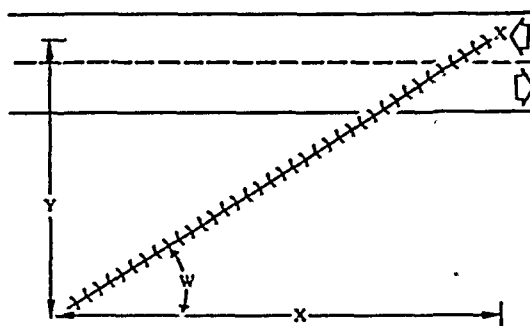


Figure V-2 Radar Setup - Method B

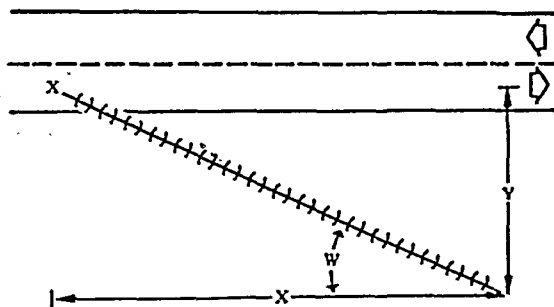


Figure V-3 Radar Setup - Method C

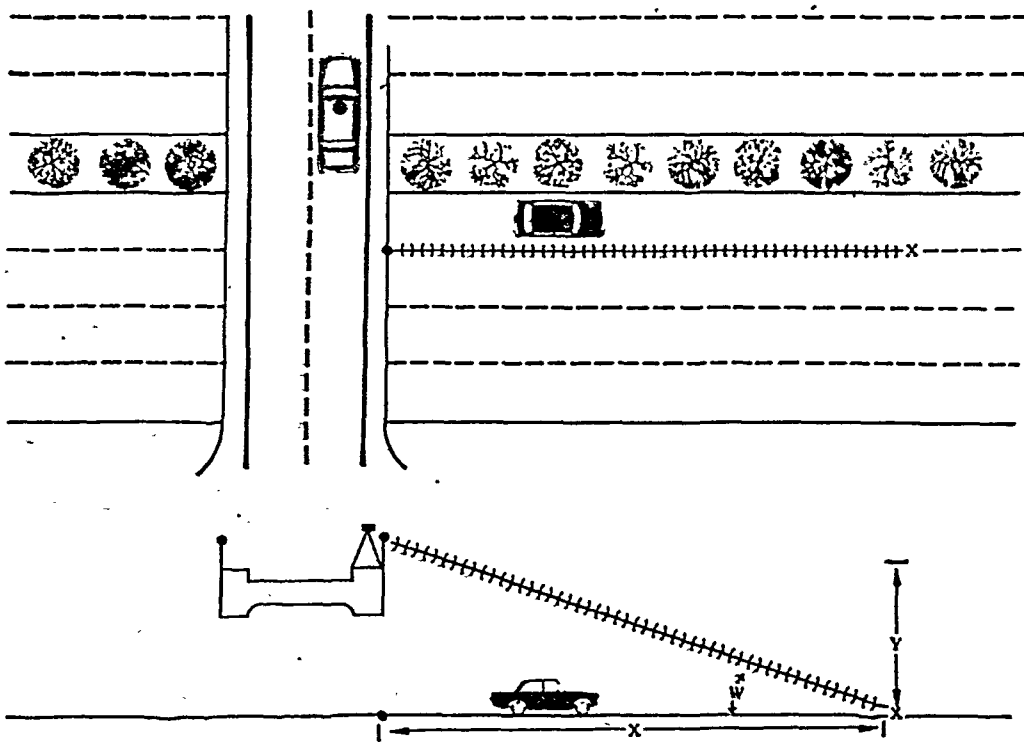


Figure V-4 Radar Setup - Method D

- Provides safety for the field crew and does not present hazards to motorists.

a. Documentation--The final station configuration must be fully described by the field crew at the site. This should include the preparation of a detailed sketch similar to the illustrations in Figures V-1 through V-4. It is extremely important that the dimensions "x" and "y" in the figure be measured at the station location and the number of lanes be indicated on the sketch. The methods of concealment should also be shown (e.g., presence of trees and bushes, bridge supports).

It is desirable to take photographs of the location itself, the segment of road being monitored, the equipment setup (including the placement of the vehicle), and the methods of concealment if not obvious from the other pictures. If self-developing cameras are used, each photograph should be carefully labeled at the site, otherwise, detailed notes describing the pictures should be recorded separately.

b. Beginning of Session Procedures--The radar manufacturer's recommended calibration tests should be made. Each tuning fork should be struck in the palm of the hand and quickly held in front of the radar transmitter. The precise meter reading resulting from each test should be recorded on the data collection form. Any discrepancy greater than 2 m.p.h. should immediately be reported to the program manager; no measurement should be taken with an inaccurate radar unit.

After the station setup has been described and calibration tests successfully completed, the data recording technician should note the starting time on the data collection form.

c. Measurement and Recording of Speeds--The radar operator should then begin measuring vehicle speeds. It is the objective of this program to measure the speed of every vehicle. Care must be taken, however, that the "wrong" vehicle (for example, a vehicle in the opposing direction) is not measured. Speed readings that cannot be identified to a specific vehicle should not be recorded. When the radar operator "catches" the desired vehicle the speed should be spoken to the recording technician, who must carefully enter this information on the data collection form. Several shifts of personnel may be needed during the 24-hour data collection period.

The stopping time should be entered on the data collection form. Additional comments concerning any aspect of the speed measuring activity (e.g., changes in weather) should also be recorded.

d. End of Session Procedures--The calibration of the radar unit should again be tested using the same procedures as before. The results of the test should be recorded on the data collection form.

All required information should be noted legibly on the data collection form. Any missing items should, of course, be entered.

## VI. DATA ANALYSIS AND SAMPLE DESIGN EVALUATION

This chapter describes the procedures to be used in analyzing speed monitoring data. The main objective is to develop standard procedures applicable to all States in order to insure that comparable results are obtained. The chapter is divided into four sections:

- Computation of statistics related to the percentage exceeding 55 m.p.h.;
- Sample size determination based on data analysis;
- Computation of other statistics (mean, median, 85th percentile, and percentages exceeding other speeds); and
- Specialized analysis.

Each of these sections is designed to present both the formulas and the procedure to be followed. Simplified examples are provided to illustrate the procedures. These examples also present a worksheet approach which can be used to make the actual calculations.

#### COMPUTATION OF STATISTICS RELATED TO THE PERCENTAGE EXCEEDING 55 M.P.H.

An estimate of the percentage exceeding 55 m.p.h. and its standard error are derived for each highway grouping and then combined for the statewide estimates. Only the percentages exceeding 55 m.p.h. are needed to complete the certification forms. The standard errors can be used to determine the actual statistical reliability obtained and to determine whether the sample size for the next year's design needs adjustment.

The proportion exceeding 55 m.p.h. at each standard location is computed by dividing the number of vehicles traveling at speeds in excess of 55 m.p.h. by the total number of vehicles measured. The percentage of vehicles exceeding 55 m.p.h. is derived simply by multiplying the proportion by 100.

At control locations four quarterly sessions are obtained and require a special procedure in order to equate them with annual sessions at standard locations. This is done by averaging the number of vehicles exceeding 55 m.p.h. and the total number of vehicles measured during the four control sessions (Example VI-1). These averages are then used to compute the annual proportion of vehicles exceeding 55 m.p.h. at that control location and also to represent that location in the highway grouping and statewide figures.

#### Example VI-1

Compute the average percent of vehicles exceeding 55 m.p.h. at a control location.

Location Number 1	Number of Vehicles Exceeding 55 m.p.h.	Total Vehicles Measured
Quarter		
1	2377	6731
2	3268	5508
3	3565	7343
4	2674	4895
Total	11,884	24,476
Average	2,971	6,119
Average Percent Exceeding 55 M.P.H.	$100 \times \frac{2,971}{6,119} = 49\%$	

Percentage Exceeding 55 m.p.h. by Highway Grouping.--The estimated percentage exceeding 55 m.p.h. for each highway grouping is derived by summing the number of vehicles exceeding 55 m.p.h. in all the sample locations within the highway grouping, dividing this sum by the total number of vehicles measured in the highway grouping, and multiplying the result by 100. Control location figures must be averages of the four sessions.

In equation form

$$P_h = P_h \times 100 = \frac{\sum_{i=1}^{n_h} y_{hi}}{\sum_{i=1}^{n_h} x_{hi}} \times 100$$

where  $P_h$  = percentage exceeding 55 m.p.h. in the  $h$ th highway grouping ( $h = 1, \dots, 6$ );

$P_h$  = proportion exceeding 55 m.p.h. in the  $h$ th highway grouping;

$n_h$  = number of locations in the  $h$ th highway grouping;

$y_{hi}$  = number of vehicles exceeding 55 m.p.h. in location  $i$  ( $i = 1, \dots, n_h$ ) of the  $h$ th highway grouping; and

$x_{hi}$  = number of vehicles measured in location  $i$  of the  $h$ th highway grouping.

#### Example VI-2

Compute the estimated percentage exceeding 55 m.p.h. based on the following data from a highway grouping ( $h = 1$ ):

(1) Location Number (i)	(2) Number of Vehicles Exceeding 55 m.p.h. ( $y_{1i}$ )	(3) Total Vehicles Measured ( $x_{1i}$ )
1	2,971	6,119
2	2,069	4,484
3	5,361	7,949
4	12,561	15,412
5	8,631	12,703
6	1,921	4,918
7	2,168	4,682
Total 7	35,682	56,267

1/For control locations this would be the average of the four control sessions (Example VI-1).

The proportion of vehicles is the sum of vehicles exceeding 55 m.p.h. divided by the number of vehicles measured,

$$P_1 = 35,682 / 56,267 = 0.634$$

and the estimated percentage is 0.634 times 100 equals 63.4 percent.

Statewide Percentage Exceeding 55 m.p.h.--Once estimates have been computed for each of the applicable highway groupings, the statewide estimate of the percentage exceeding 55 m.p.h. is derived by the following formula which weights the estimates from each highway grouping by the relative VMT subject to the 55 m.p.h. speed limit of each highway grouping:

$$P_{st} = \sum_{h=1}^6 W_h P_h$$

where  $P_{st}$  = statewide estimate of the percentage exceeding 55 m.p.h.;

$P_h$  = percentage estimated for the  $h$ th highway grouping; and

$W_h$  = relative travel (VMT or DVT) subject to the 55 m.p.h. limit for the  $h$ th highway grouping.

#### Example VI-3

Compute the statewide percentage exceeding 55 m.p.h. based on the following data from the six highway groupings.

(1) Highway Grouping (h)	(2) Relative Travel ( $W_h$ )	(3) Estimated Percentage Exceeding 55 m.p.h. ( $P_h$ )	(4) Column 2 Times Column 3
1	0.12	80.0	9.60
2	0.10	62.3	6.23
3	0.24	49.6	11.90
4	0.07	79.3	5.55
5	0.17	70.5	11.99
6	0.30	52.1	15.63
Total--	1.00	--	60.9

1/These are the same or updated figures used in allocating the sample in Chapter III.



The statewide estimated percentage exceeding 55 m.p.h. is 60.9, the total of column 4.

Standard Error of Estimates by Highway Grouping.--The approximate standard error of the estimated proportion exceeding 55 m.p.h. of each highway grouping can be derived by the formula:<sup>1/</sup>

$$s(p_h) = \sqrt{\left(1 - \frac{n_h}{N_h}\right) \left( \frac{\sum_{i=1}^{n_h} y_{hi}^2}{n_h} + p_h^2 \sum_{i=1}^{n_h} x_{hi}^2 - 2p_h \sum_{i=1}^{n_h} y_{hi} x_{hi} \right) / \sum_{i=1}^{n_h} (x_{hi} - 1) \bar{x}_h^2}$$

where  $s(p_h)$  = standard error of the estimated proportion exceeding 55 m.p.h. of the  $h$ th highway grouping;

$N_h$  = number of 5-mile segments subject to the 55 m.p.h. speed limit in the  $h$ th highway grouping; and the remaining terms are as defined in the previous section.

The standard error of the percentage exceeding 55 m.p.h. can be easily derived by multiplying the above  $s(p_h)$  by 100.

#### Example VI-4

Compute the standard error of the percentage exceeding 55 m.p.h. using the data in Example VI-2.

<sup>1/</sup>This is the standard ratio estimate formula applicable to cluster samples.

(1) Location Number (i)	(2) Number of Vehicles Exceeding 55 m.p.h. (y <sub>1i</sub> )	(3) Column (2) Squared (y <sub>1i</sub> <sup>2</sup> )	(4) Total Vehicles Measured (x <sub>ni</sub> )	(5) Column (4) Squared (x <sub>ni</sub> <sup>2</sup> )	(6) Column (2) Times Column (4) (y <sub>1i</sub> x <sub>ni</sub> )
1	2,971	8,826X10 <sup>6</sup>	6,119	37,442X10 <sup>6</sup>	18,180X10 <sup>6</sup>
2	2,069	4,281X10 <sup>6</sup>	4,484	20,106X10 <sup>6</sup>	9,277X10 <sup>6</sup>
3	5,361	28,740X10 <sup>6</sup>	7,949	63,187X10 <sup>6</sup>	42,615X10 <sup>6</sup>
4	12,561	157,779X10 <sup>6</sup>	15,412	237,530X10 <sup>6</sup>	193,590X10 <sup>6</sup>
5	8,631	74,494X10 <sup>6</sup>	12,703	161,366X10 <sup>6</sup>	109,640X10 <sup>6</sup>
6	1,921	3,690X10 <sup>6</sup>	4,918	24,187X10 <sup>6</sup>	9,447X10 <sup>6</sup>
7	2,168	4,700X10 <sup>6</sup>	4,682	21,921X10 <sup>6</sup>	10,151X10 <sup>6</sup>
Total	7	35,682	282.510X10 <sup>6</sup>	56,267	565.739X10 <sup>6</sup>

For the purposes of this example, assume that the total number of segments in this highway grouping is 1,500, then using the table above:

$$1 - n_1 / N_1 = 1 - 7 / 1500 = 0.995$$

$$\sum_{i=1}^7 y_{1i}^2 = 282.510X10^6, \text{ the total of column (3)}$$

$$p_1 = 0.634 \text{ from Example VI-2}$$

$$\sum_{i=1}^7 x_{ni}^2 = 565.739X10^6, \text{ the total of column (5)}$$

## Example VI-5

Compute the statewide standard error of the estimated percentage of vehicles exceeding 55 m.p.h. using the data in the following table.

(1)	(2)	(3)	(4)	(5)	(6)
Highway Grouping (h)	Relative VMT ( $W_h$ )	Standard Error of the Percentage Exceeding 55 m.p.h. [ $s(P_h)$ ]	Column (2) Squared [ $W_h^2$ ]	Column (3) Squared [ $s(P_h)^2$ ]	Column (4) Times Column (5)
1	0.12	6.55	0.0144	42.90	0.6178
2	0.10	12.32	0.01	151.78	1.5178
3	0.24	11.15	0.0576	124.32	7.1608
4	0.07	8.60	0.0049	73.96	0.3624
5	0.17	9.30	0.0289	86.49	2.4996
6	0.30	14.70	0.09	216.09	19.4481
Total	1.0	—	—	—	31.6065

The total of column (6) is the variance, and the standard error is 5.62, the square root of the variance. The subsequent section uses this number to determine the statistical reliability of the sample.

Accuracy of Statewide Estimates.—The actual statistical accuracy achieved can be determined by computing confidence intervals. The magnitude of an approximate one-sided 95 percent confidence interval of the estimate assuming a normal distribution of speeds is given by:

$$d = t_{.95, n-1} s(P_{st})$$

where  $d$  = actual accuracy achieved,

$t_{.95, n-1}$  = value of student's  $t$  distribution with  $\alpha = 0.05$  and  $n$ , the number of statewide monitoring locations

$s(P_{st})$  = standard error of the statewide percentage exceeding 55 m.p.h.

$$\sum_{i=1}^7 y_{1i} = 392.900 \times 10^6, \text{ the total of column (6)}$$

$$\text{and } \bar{y} = 8.038 \times 10^3, \text{ the total of column (4)}$$

divided by  $n_1$  ( $n_1 = 7$ )

completing the formula

$$s(P_1) = \sqrt{\frac{7(6) (8.038)^2 \times 10^6}{(.975) [282.510 + (.634)^2 (565.739) - 2(-.634)(392.900)] \times 10^6}}$$

$$= \sqrt{.00429}$$

$$= 0.0655$$

The standard error of the percentage of highway grouping 1 is obtained by multiplying this last value by 100.

$$s(P_1) = 6.55 \text{ percent.}$$

Statewide Standard Error Estimate.—Once values have been computed for each of the applicable highway groupings, a statewide standard error estimate is derived by the following formula:

$$s(P_{st}) = \sqrt{\sum_{h=1}^6 W_h^2 [s(P_h)]^2}$$

where

$s(P_{st})$  = standard error of the estimated statewide percentage of vehicles exceeding 55 m.p.h.;

$W_h$  = relative travel (VMT or DVM) subject to the 55 m.p.h. limit on the  $h$ th highway grouping; and

$s(P_h)$  = standard error of the estimated percentage exceeding 55 m.p.h. for the  $h$ th highway grouping.

As before, at least 20 percent of the locations should be labeled control locations and sampled quarterly. A monitoring schedule which assumes randomization over the year must be used (see Chapter V).

#### Example VI-7

Determine the new sample size under the accuracy concept assuming that a percentage standard error of 2.0 was derived for the previous year based on a sample of 45 locations.

From the previous section, the actual sampling accuracy is

$$t_{.95,44} s(p_{92}) = 1.684 (2.0) = 3.37$$

The new sample size is determined by dividing 3.37 by 2.5 and multiplying by 45, which equals 61 locations.

The new statewide sample size would then be dependent on the number derived based on the coverage concept. The coverage sample size is derived by dividing the total statewide DVM figure by 1,000,000 (see Chapter III, Example III-2).

#### COMPUTATION OF OTHER STATISTICS

The statistics discussed in this section are averaged speed, median speed, 85th percentile speed, and proportions exceeding specific speeds. The data on which these estimates are based are collected at control locations according to the procedures in Chapter III. Since the number of control locations is not very large, the accuracy levels of these estimates will not match that achieved for the percentage exceeding 55 m.p.h. estimates. However, computing these estimates by highway grouping and for the State as a whole will present a much better picture of the actual characteristics of the population of speeds. Since one purpose of the national speed limit is to improve safety by enforcing motorist compliance, a valuable tool will be provided to aid in the planning of safety or enforcement activities.

The discussion will concentrate on the average, median and 85th percentile speeds only. Statistics regarding the proportions exceeding 60 m.p.h., 65 m.p.h. or any other speed can be derived using exactly the same procedure presented in the previous sections by simply using the proportion exceeding the desired speed instead of the proportion exceeding 55 m.p.h.

Since the desired accuracy of the estimate was used to determine the initial sample size, this is an easy way of determining whether the sample size needs to be adjusted. If the interval computed is less than or equal to 2.5 percent (the desired accuracy presented in Chapter III), then no change to the statewide number of locations is needed.

The initial sample size was based on the concepts of accuracy and coverage. For those States where the coverage concept was the deciding factor in selecting sample size, it is unlikely that any change in sample size will be needed. For States, where the accuracy concept decided the sample size or for borderline States where the numbers under both concepts were similar, increases or decreases may be needed. Increasing the sample size to meet the accuracy requirement is mandatory while decreasing the sample size is optional. The next section describes a procedure to adjust the sample size under the accuracy concept.

#### Example VI-6

Compute the accuracy achieved based on the data in Example VI-5. The standard error from Example VI-5 is 5.62. The value of the t statistic ( $t_{.95,90}$ ) with  $\alpha = 0.05$  and assuming a sample size of 90 is 1.645. The interval then is  $(1.645 \times 5.62)$  equals 9.24. This means that even though the target accuracy was 2.5, the actual accuracy of the statewide estimate is 9.24. This example is presented only to explain the computation and it should not in any way imply that a sample of 90 locations would produce such poor results.

#### SAMPLE SIZE DETERMINATION BASED ON DATA ANALYSIS

These procedures are only required for States not meeting the desired sampling accuracy (2.5) of the estimated percentage exceeding 55 m.p.h. The procedure presented in Chapter III to estimate sample size under the accuracy concept is to be used only for the first year's plan. In theory, the determination of sample size for cluster sampling is a more involved process.

The following empiric procedure has been designed to relate sample size to reliability obtained and therefore provide a better and simpler tool to approximate the required sample size. First, determine the actual reliability achieved by the methods in the previous section. Then, divide by 2.5 and multiply by the old sample size to obtain the new sample size under the accuracy concept. The statewide minimum sample size shall be decided by comparing the numbers produced by the accuracy and coverage concepts and selecting the higher number of locations.

- 1/ The coverage concept sample size should be based on the latest available figures on travel (DVM).

that speed value. For individual speed data, the median is the middle value when speeds are ordered according to magnitude. If the number of vehicles is even, then average the two middle values.

Example VI-9

Compute the median of the following two sets of numbers

3 5 7 9 11 13 15 17 19  
and 3 5 7 9 11 13 15 17 19 21

There are nine values in the first set, and hence, the middle is the fifth. The fifth value (11) is the median. For the second set the middle values are 11 and 13 and the median is the average 12. This example also illustrates that the median is not necessarily one of the given values.

For grouped speed data it is necessary to determine in which group the middle value falls and then to proportionately allocate the middle value within that group. Example VI-10 presents a worksheet which can be used for this purpose.

Example VI-10

Compute the median of the data in Example VI-8.

(1)	(2)	(3)
Speed Group	Number of Vehicles	Cumulative Frequency
41-45	200	200
46-50	250	450
51-55	550	1,000
56-60	450	1,450
61-65	350	1,800
66-70	300	2,100
71-75	200	2,300

The middle value is the 1,150th value (2300 divided by 2). From the cumulative frequency column, the 1,150th value is in the 56-60 speed group. There are 450 values in that class and therefore the interval allocation for the 150th value (1150-1000) is 150/450 (1/3) times the group interval (1/3 x 5). The median is then the lower value of the group plus one-third of the group interval (56 + 5/3 = 57.7). This procedure assumes a uniform distribution of values within each group interval.

to compute the session statistics, two procedures will be presented which deal with the two possible alternatives of individual speeds or groups of speeds. The simplest and most statistically sound method of data collection would be to collect individual speeds for a 24-hour period at each session. However, equipment and other considerations may result in the collection of groups of speeds.

Session Average or Mean Speed.--For each control session the average speed is computed by summing the speeds of all vehicles sampled and dividing by the number of vehicles sampled. If groups of speeds were collected, the mean speed is derived by multiplying the midpoint of each group by the number of vehicles in each group, summing all groups, and dividing the total by the total number of vehicles. This procedure assumes equal group intervals and a uniform distribution of speeds within groups.

Example VI-8

A worksheet approach is presented to compute the average speed of grouped data from a control session.

(1)	(2)	(3)	(4)
Speed Group	Number of Vehicles	Midpoint	Col.(2) X Col.(3)
41-45	200	43	8,600
46-50	250	48	12,000
51-55	550	53	29,150
56-60	450	58	26,100
61-65	350	63	22,050
66-70	300	68	20,400
71-75	200	73	14,600
Total	2,300	—	132,900

The average speed is the total of column 4 divided by the total of column 2, or  $\frac{132,900}{2,300}$  which equals 57.8 m.p.h.

Session Median Speed.--The median speed or 50th percentile speed of each control session is defined as the speed value which divides the distribution so that 50 percent of the vehicles measured were traveling below

## VII. REPORTING RESULTS

Session 85th Percentile Speed.--The 85th percentile speed is the speed value at or below which 85 percent of the vehicles were traveling. For individual speed data ordered by speed magnitude, it is the value of the observation determined by multiplying the total number of vehicles sampled by 0.85. For grouped data it is computed by the same procedure as the median.

Example VI-11

Compute the 85th percentile of the data in Example VI-10. The 85th percentile observation is the 1955th observation ( $2300 \times .85 = 1955$ ). From the cumulative frequency in example VI-9, it falls in the 66-70 group. Then proportion the interval ( $1955-1800 \times 5 = 2.6$ ) and the estimated 85th percentile is 68.6 m.p.h. ( $66 + 2.6 = 68.6$ ).

Highway Functional Grouping and Statewide Estimates.--Data for each control session within a highway functional grouping should be combined to form a composite data set. Then the mean, median, and percentile speeds can be estimated by using the same procedures presented for the estimation of session statistics. Statewide estimates can be derived in the same manner by combining the data from all control sessions to form a statewide composite data set and applying the same session procedures.

SPECIALIZED ANALYSIS

Based on the fact that quarterly measurements were taken at each control location, it is possible to develop estimates by quarter which can be used to determine the extent of seasonal variation. All of the procedures which have been presented in previous sections are as applicable to annual as to quarterly data. The data collected from standard sessions can also be used for this purpose. However, since the measurements were made at different locations, the seasonal differences will be confounded by locational differences. In the same light, these types of analyses can be conducted by month, day of the week, or geographical location within a State depending, of course, on the manner in which the measurement sessions were arranged and on the method of data collection.

1/ In statistical terminology confounding indicates that effects cannot be differentiated.

Summary speed statistics from each State's monitoring program are required to be submitted to FHWA as part of the annual certification of 55 m.p.h. speed limit enforcement. In addition, FHWA is requesting a continuation of the current practice of submitting quarterly reports showing results of monitoring during the previous 3-month period. The statewide value of "percent of motor vehicles exceeding 55 m.p.h." calculated to represent all traffic throughout the State is the critical statistic required in a State's annual certification. Figure VII-1 shows the desired format for reporting both required annual and optional quarterly speed summary data. In the annual certification, the following data must be reported for each functional group:

- Weighting factor for calculating statewide values (calculated from system VMT subject to the 55 m.p.h. speed limit).
- Highway mileage with a legal speed limit of 55 m.p.h.
- Number of monitoring locations. Show in parentheses the number of control locations where detailed speed data were collected.
- Number of vehicles measured.
- Percent of vehicles exceeding 55 m.p.h.
- Percent of total statewide vehicle miles of travel on facilities with a legal speed limit of 55 m.p.h.

Based on control locations where more detailed data are collected, the following data will be collected and shall be reported using the same format in Figure VII-1:

- Average speed
- Median speed
- 85th percentile speed
- Percent of vehicles exceeding 60 m.p.h.
- Percent of vehicles exceeding 65 m.p.h.

Individual session reports can be useful at the State level for identifying locations warranting increased enforcement activity. Although reporting of these session statistics is not required, States should maintain these data in their files for a minimum of 3 years following the year of collection.

Figure VII-1  
Speed Summary Report☐ QUARTERLY REPORT--CALENDAR QUARTER ENDING \_\_\_\_\_☐ ANNUAL REPORT--YEAR ENDING \_\_\_\_\_

STATE \_\_\_\_\_

ALL LOCATIONS <sup>1/</sup>				CONTROL LOCATIONS <sup>2/</sup>				
Weighting Factor	Miles <sup>3/</sup>	No. of Locations <sup>4/</sup>	No. of Vehicles Observed	Percent Exceeding 55MPH	No. of Locations	No. of Vehicles Observed	Avg. Speed	Median Speed
Interstate Urban								
Interstate Rural								
Other Urban Principal Arterials								
Urban Minor Arterials and Collectors								
Other Rural Principal and Minor Arterials								
Rural Collectors								
Statewide	1.00							

Percent of Total Statewide VMT on Facilities with 55MPH Speed Limits <sup>1/</sup> \_\_\_\_\_

- <sup>1/</sup> These data are required with annual certification. Quarterly submissions are requested.
- <sup>2/</sup> These data are required with annual certification and data will be collected at control locations. Quarterly submissions are requested.
- <sup>3/</sup> That paved mileage subject to a legal speed limit of 55MPH.
- <sup>4/</sup> Report in parentheses ( ) the number of control Locations.

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Monday  
November 5, 1979

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**Part IV**

**Department of  
Transportation**

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**Federal Aviation Administration**

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**Procedures for Filing Complaints, Issuing  
Certain Orders and Conducting Formal  
Fact Finding Investigations**

## DEPARTMENT OF TRANSPORTATION

## Federal Aviation Administration

## 14 CFR Part 13

[Docket No. 18884; Amdt. No. 13-14]

**Procedures for Filing Complaints, Issuing Certain Orders and Conducting Formal Fact Finding Investigations**

AGENCY: Federal Aviation Administration (FAA) DOT.

ACTION: Final rule.

**SUMMARY:** The FAA amends its rules of practice in enforcement cases to provide a regulatory mechanism for the filing of formal complaints, and to prescribe enforcement procedures for the issuance of certain orders of denial, cease and desist orders and orders of compliance, and the conduct of formal fact finding investigations under the Federal Aviation Act of 1958, the Airport and Airway Development Act of 1970, and the Hazardous Materials Transportation Act.

EFFECTIVE DATE: November 5, 1979.

**FOR FURTHER INFORMATION CONTACT:**

Jonathan Howe, Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, D.C., Telephone (202) 426-3775.

**SUPPLEMENTARY INFORMATION:****General Comment**

These amendments are based on Notice 79-6, which was published in the Federal Register on March 19, 1979 (44 FR 16424). Interested persons have been afforded an opportunity to participate in the making of this amendment and due consideration has been given to all matter presented.

Since this amendment adopts a substantial redefinition and codification of investigative and enforcement procedures by the FAA, the statement of the objectives of this process which was published in Notice 79-6, is repeated below, together with a discussion of the more significant comments and changes to the proposed amendment resulting therefrom. Of the 7 comments received, only one objected generally to the proposed amendment. That commentator recommended the FAA propose in a new notice a general reorganization of the form and content of Part 13 of the Federal Aviation Regulations. Although a number of the commentator's recommendations may have merit, the benefit to the public of a regulatory mechanism for the filing of formal complaints and the provision of procedures for the conduct of formal investigations and certain enforcement

actions should not be delayed by the institution of additional rulemaking procedures related primarily to the form rather than the substance of the procedures. However, several changes in format and organization have been made as a result of the comments received. The FAA also contemplates a review of the procedures established by these amendments after they have been in operation for at least one year and desires public participation in that review. Interested persons are invited to submit such comments as they may desire with respect to the enforcement procedures and the format of Part 13. Communications should identify the regulatory docket number of this amendment (Docket No. 18884) and be submitted in duplicate to the Federal Aviation Administration, Office of the Chief Counsel, Attention: Rules Docket, AGC-24, 800 Independence Avenue, SW., Washington, D.C. 20591. All comments received on or before October 31, 1980, will be considered during this review, and will be available both before and after that date in the Rules Docket for examination by interested persons.

**Regulatory History**

As a result of the passage of the Airline Deregulation Act of 1978 (Pub. L. 95-504, 92 Stat. 1705), the FAA has placed added importance on its responsibility to assure that the laws under which it operates are strictly enforced. Implicit in the authority to issue regulations is the responsibility to enforce them. While compliance with the safety standards established under Title VI of the Federal Aviation Act of 1958 (FAAct) continues to be the principal focus of the agency's enforcement program, that program today extends to requirements imposed by Titles III and V of the FAAct, the Hazardous Materials Transportation Act, and the Airport and Airway Development Act.

The types of actions possible under these statutes are set out in Part 13 of the Federal Aviation Regulations (FAR). They span a range from Warning Notices to certificate suspensions and revocations, summary aircraft seizure and substantial civil penalties. The procedure followed by the FAA is essentially that followed by any law enforcement agency vested with authority to take civil actions. Criminal sanctions are provided by statute for certain violations; however, these actions are undertaken by the Department of Justice.

Except in the case of administrative actions taken as provided for in Subpart B of Part 13, an investigation is initiated

to determine whether a basis exists for taking legal action. Ordinarily, no final legal disposition within the meaning of the Administrative Procedure Act is taken without notice and an opportunity to be heard. Important exceptions, however, are the provisions of sections 903 and 1005 of the FAAct which allow for summary seizure of aircraft and emergency orders without prior notice or hearing.

In accordance with section 901(a)(2) of the FAAct, any civil penalty action may be compromised by the Administrator, and no administrative adjudications are made. A final adjudication on the merits is possible only after suit is brought in the United States District Court. Civil penalties imposed pursuant to the Hazardous Materials Transportation Act are administratively adjudicated since both that Act and the regulations provide for notice and an opportunity to be heard. All other orders and requirements imposed pursuant to these statutes are judicially enforceable and subject to judicial review.

The procedures adopted in these amendments will assure that all enforcement actions taken by the FAA fit within the process described above. They will also serve to codify and standardize existing procedures which were not set out in Part 13. Except in emergency actions and cases involving aircraft seizure, no order by the FAA will take effect without there first being notice and an opportunity for hearing either before the FAA or, in the case of actions pursuant to sections 602 and 609 of the FAAct, before the National Transportation Safety Board. Hearings before the FAA will be in accordance with Subpart D of Part 13.

As stated in Notice 79-6, no significant changes in the investigative process are intended. The formal fact-finding investigation procedures set forth in new Subpart F of Part 13 essentially codifies existing practices and is not expected to be used frequently. It should be emphasized, however, that these procedures are simply a part of the FAA's general investigative powers and in no way should be construed as an "opportunity to be heard" as previously discussed. It should also be noted that actions currently in process will not be affected by these amendments.

**Formal Complaints**

Procedures for processing formal complaints have been established in § 13.5 in Subpart A of Part 13 since the procedures pertain to investigation of complaints rather than legal enforcement action. (These procedures



were proposed in Notice 79-6 as a new § 13.12 in Subpart C of Part 13.) Section 13.5 establishes procedures for processing complaints alleging violations of any provision of a law, regulation, or order for which the Administrator of the FAA exercises enforcement responsibility. These procedures will also facilitate enforcement of regulations issued pursuant to the requirements of section 30 of the Airport and Airway Development Act of 1970 (49 U.S.C. 1730) and the processing of complaints filed thereunder. This section provides that no person shall be excluded on the grounds of race, creed, color, national origin, or sex from participating in any project for airport development, airport master planning, or airport system planning conducted with funds received from a grant made under the Airport Aid Program.

The amendment will assist persons who file formal complaints for orders or other enforcement actions by specifying: (1) A central location for the filing of complaints, (2) the information that must be submitted with the complaint, and (3) the procedures for processing the complaint. The procedures provide for notice to the person complained of; investigation of the allegations set forth in the complaint, including initiation of Subpart F fact-finding investigative procedures, as appropriate; and the initiation of enforcement action if the investigation substantiates the allegations set forth in the complaint.

In response to the suggestion of one commentator, § 13.5(h) has been revised to make it clear that, if a complaint is dismissed, the person who filed the complaint and the person named in the complaint will be given the reasons for the dismissal.

Two comments expressed concern that the investigational authority in § 13.1 could lead to abuse of the power vested in the FAA and recommended guidelines be established to define when an investigation should be opened and when a formal complaint should be investigated and that limitations be placed on the investigations. Sections 313 and 1002 of the FAA Act authorizes the Administrator to conduct such investigations as he shall deem necessary to carry out the provisions of, and to exercise and perform his powers and duties, under the FAA Act. The Administrator has the duty to investigate any possible violations of the FAA Act or the regulations issued thereunder and to take appropriate enforcement or other action to provide for aviation safety and the public interest. The regulations cannot alter

that responsibility and authority and this amendment to § 13.1 merely adds the Airport and Airway Development Act of 1970 to the statutes listed in the present regulations under which the Administrator conducts investigations. In addition, the codification of existing procedures for formal investigations should eliminate any concern regarding abuse of the power vested in the Administrator.

#### FAA Hearings

Several comments were received concerning the hearing procedures of Subpart D of Part 13. One commentator recommended that Subpart D be rewritten to conform to the hearing procedures of the Administrative Procedure Act (APA) (5 U.S.C. 551 et seq.). Since the hearings held under Subpart D are not required by statute to be held on the record they are not required to conform to the APA procedures. However, the Subpart D procedures do satisfy statutory and due process requirements for such hearings.

Another comment expressed concern that § 13.59(b) could compel the entry of proprietary and trade secret information into the public record without protection to persons holding that information. Although this authority is implicit in the authority of Hearing Officers, in view of the comment, it is being made explicit in new § 13.59(c). This amendment provides that a Hearing Officer may, upon the Hearing Officer's own motion or the motion of any interested person and for good cause shown, issue a protective order withholding from public disclosure any information contained in any report or document filed or in any testimony given when, in the judgement of the Hearing Officer, disclosure would adversely affect the interest of any person and the information is not required in the public interest or is not otherwise required by statute to be made available to the public. Section 13.115 has also been modified to more clearly state this provision with regard to Presiding Officers in formal fact-finding investigations.

Commentator also felt that the 10 day period specified in §§ 13.20(d) and 13.75(c) to request a hearing should be increased to at least 30 days. Ten days should be sufficient time in most cases to note a request for a hearing since there is no requirement for the filing of any legal document or other material when requesting a formal hearing. However, the amendments do provide procedures for the granting of extensions of time should it be needed in a particular case.

As stated in Notice 79-6, any appeal to the Administrator from a Hearing

Officer's decision and order will be decided on the record of the FAA hearing and will not involve a trial *de novo*. The Administrator's decision and order is both an "adjudication" and "final disposition" within the meaning of section 551 of the APA and is therefore subject to judicial review in accordance with applicable statutes.

Provision has been made in new § 13.13 for the issuance of consent orders in any legal enforcement action taken under Subpart C. Similar procedures are presently provided for in § 13.77 in Subpart E of Part 13 relating to orders of compliance under the Hazardous Materials Transportation Act. In addition, § 13.13(c) has been changed, to correct a clerical error, by inserting after the word "include" the words, "a request to be filed."

#### Orders of Compliance, Cease and Desist Orders, Orders of Denial and Other Orders

Although Subpart E of Part 13 sets forth procedures for the issuance of orders of compliance under the Hazardous Materials Transportation Act, Part 13 does not contain procedures for the issuance of orders of compliance under the FAA Act or the Airport and Airway Development Act of 1970. Accordingly, this amendment to § 13.20 in Subpart C establishes procedures for the issuance of orders of compliance with the provisions of those acts and any orders or regulations issued thereunder.

The FAA also issues other orders which meet the "final disposition" test discussed above. Examples of these include orders to cease and desist, orders of denial, and orders under section 308(a) of the FAA Act. Since no statutory provision for an "opportunity to be heard" exists for orders of this type (except for orders of denial of airman certificates issued under section 602 of the FAA Act), the potential exists for administratively final orders to be issued without basic "due process" protections. Equally important is the requirement imposed by section 1006 of the FAA Act that such orders are subject to judicial review by the Courts of Appeals of the United States or the U.S. Court of Appeals for the District of Columbia. To assure due process and administrative records before these Courts sufficient to dispose of the matter properly, this amendment to § 13.20 provides notice and an opportunity for a hearing in accordance with Subpart D of Part 13. The amendment also expands the provisions of this section to orders other than to cease and desist. The limited scope of present § 13.20, which is confined to emergencies under section

1005(a) of the FAA Act, is no longer a proper reflection of the range of administratively final orders issued by the FAA. Furthermore, the authority conferred by section 1005(a) of the FAA Act is not available for proceedings arising under the Airport and Airway Development Act of 1970. One comment suggested that the procedures in present § 13.20 should be retained if the FAA intends to continue to respond to emergencies in the same manner it has in the past. No change in current procedure is intended. Section 13.20(b) recognizes that emergency action may be required and, in appropriate situations, the Administrator's emergency authority under section 1005(a) of the FAA Act may be exercised in the issuance of orders under the FAA Act.

One comment suggested that Subpart E of Part 13, which sets forth procedures for the issuance of orders under the Hazardous Materials Transportation Act, should be consolidated with Subpart C [Legal Enforcement Actions.] Revised § 13.20 in Subpart C contains procedures for issuing various orders, including orders of compliance, which are similar in many respects to the procedures set forth in subpart E. However, in view of differences in the statutes and regulations to which the procedures relate, Notice 79-6 retained their separate identity. Nevertheless, a codification of these procedures may be appropriate and comments on this aspect of the format of Part 13 are specifically requested in connection with the one year review of the procedures discussed above.

It should also be noted that orders issued pursuant to sections 602 and 609 of the FAA Act are excluded from the provisions of § 13.20. This is because those sections specifically provide for review by or an appeal to the National Transportation Safety Board prior to judicial review under section 1006 of the FAA Act. Sections 602 and 609 of the FAA Act deal with the issuance of airman certificates and the amendment, suspension, and revocation of various certificates issued by the FAA. The National Transportation Safety Board's rules of practice for such proceedings may be found in 49 CFR Part 821.

#### Fact-Finding Investigations

The FAA has broad authority under the statutes it administers to conduct investigations. The fundamental purpose of these investigations is to gather facts necessary to determine whether some formal action under these laws should be taken. The possible formal actions which might be taken include enforcement or rulemaking and

adjudication as defined by section 551 of the APA. While the FAA relies primarily on informal investigative processes designed to obtain information from all segments of the public, the need occasionally arises for a more formal proceeding. The need arises primarily when the subject matter of the investigation is extremely controversial or persons are reluctant to provide information or otherwise cooperate. In such cases it is difficult to obtain facts without the taking of sworn testimony and the subpoenaing of records.

Under the laws set out above, the Administrator is empowered to conduct public hearings or investigations, take evidence and depositions and issue subpoenas. The Administrator may also require the production of documents, records, and property. In addition, the Administrator may compel testimony pursuant to the provisions of section 201(a) of the Organized Crime Control Act of 1970 (18 U.S.C. 6002 and 6004). The Federal Aviation Regulations presently do not expressly implement these powers and the agency has in the past relied on the language of the statutes themselves in the conduct of such investigations. This has frequently resulted in "ad hoc" proceedings. The lack of uniform, published procedures often makes it difficult for parties to such an investigation to know what is required of them. While the FAA does not anticipate any appreciable change from the present number of formal investigations, adoption of these regulations will both improve and simplify the existing uncodified procedures. It should be remembered that these formal fact-finding investigations are not adjudicatory in nature and are not proceedings in which a decision or order regarding the matter under investigation can be issued against any person. Rather, the proceedings are intended to determine whether sufficient facts exist to warrant further action. Likewise, these are not adversary proceedings in the common law sense, although the elements of fundamental due process are provided. To emphasize the distinction between proceedings under Subpart F and hearings held pursuant to Subpart D of Part 13, the official authorized to conduct these investigations is designated as the "Presiding Officer" as distinct from the "Hearing Officer" in the latter regulation. This terminology is also consistent with the language appearing in Subpart E of Part 77 of the Federal Aviation Regulations.

Sections 13.103(b) and 13.125 in Subpart F allow investigative depositions as provided for in section

1004(e) of the FAA Act as a part of the formal investigations conducted under Subpart F. However, nothing in these sections should be construed as limiting the authority of duly designated persons to issue subpoenas, administer oaths, examine witnesses and receive evidence in any informal fact-finding investigation as provided for in section 1004(a) of the FAA Act.

The authority to conduct formal fact-finding investigations is delegated to the Chief Counsel, the Deputy Chief Counsel, each Assistant Chief Counsel, and each Regional Counsel. The Aeronautical Center Counsel is also delegated such authority for the purpose of investigating alleged violations of Title V of the FAA Act, or any regulations issued under it. The investigation is initiated by the issuance of an order of investigation and the procedures are intended to provide an expeditious and efficient handling of investigations with a minimum of inconvenience to persons who may be required to appear and testify. Upon completion of the investigation, the Presiding Officer will issue a report of the investigation, including a summary of principal conclusions. If the facts indicate no action is warranted, the investigative files are closed. Where action is initiated, the Administrator proceeds in accordance with the prescribed procedures under the FAA Act, the Hazardous Materials Transportation Act, the Airport and Airway Development Act of 1970, or the Administrative Procedure Act as applicable, and the rules and regulations issued thereunder.

One comment suggested the consolidation of the procedures in Subpart F (Fact-Finding Investigations) into Subpart A (Investigative Procedures). Revised § 13.3 in Subpart A provides for the issuance of orders of investigation in situations where formal fact-finding investigations are needed. However, the procedures for the conduct of such investigations are issued in a separate subpart for clarity and convenience of reference in the use of such procedures. This use of a separate subpart for a principal division of procedural rules is consistent with the use of Subpart D for the procedural rules applicable to hearings in certain legal enforcement actions described in Subparts C and E of Part 13.

#### Use of Records, Documents and Reports

The Federal Aviation Regulations contain many recordkeeping and reporting requirements. These records and reports are necessary to assure safety in air transportation and compliance with the laws, regulations

and orders for which the Administrator of the FAA has enforcement responsibility.

The record-keeping and reporting requirements in the regulations have been approved by the Office of Management and Budget in accordance with the Federal Reports Act of 1942. The records and reports are routinely used in fact-finding investigations and enforcement proceedings. The only exceptions to such use provided for in the current regulations are in (1) §§ 121.359(e) and 135.151(b) which state that the Administrator does not use the cockpit voice recorder records required by those regulations in any civil penalty or certificate action, and (2) § 91.57 which states that the Administrator will not use reports submitted to the National Aeronautics and Space Administration under the Aviation Safety Reporting Program (or information derived therefrom) in any enforcement action, except information concerning criminal offenses or accidents which are wholly excluded from the program. One commentator correctly noted that Notice 79-6 failed to indicate the exception in § 135.151(b). This omission was inadvertent and not intentional. In this connection, it should also be noted that § 91.57 was issued June 25, 1979 (after the issuance of Notice 79-6).

In response to frequent questions concerning the use in enforcement actions of records and reports which are required by the Federal Aviation Regulations, the FAA policy concerning the use of these records and reports is set forth in new § 13.7. Section 13.7 specifically provides that any record, document or report required to be maintained, exhibited or submitted to the Administrator (1) may be used in any investigation conducted by the Administrator and (2), except to the extent such use may be specifically limited or prohibited by the section which imposes the requirement, may be used in any civil penalty action, certificate action, or other legal proceeding.

One comment objected to the use of flight recorder data as an enforcement tool and contended that such use was not intended by the recorder requirement in § 121.343. As noted above, the only records the FAA has never used in any civil penalty or certificate action are the cockpit voice recorder records and reports submitted to NASA under the Aviation Safety Reporting Program, and these exclusions are specifically provided for in the regulations. No such exemption is contained in the regulations concerning

flight recorder data. Flight recorder data is no different than any other record or report required by the regulations, and information from these recorders is reviewed and used in investigations and enforcement actions. The fact that information in records and reports required by the regulations may provide information which might be useful in determining the probable cause of an aircraft accident does not preclude its use for another safety purpose, i.e., to assure that the regulations are complied with as required by the Federal Aviation Act.

#### Other Changes

For clarity, a number of minor editorial changes have been made to Part 13, including changing the word "Act" to "FAAct" wherever it may appear as a reference to the Federal Aviation Act of 1958. Finally, in view of recent FAA organizational changes, § 13.11(a) has been changed to indicate that the FAA field office responsible for processing the enforcement case may take administrative action.

#### Adoption of the Amendment

Accordingly, Part 13 of the Federal Aviation Regulations (14 CFR Part 13) is amended, effective November 5, 1979, as follows:

1. By revising the Title of Part 13.
2. By revising Subpart A by amending the table of contents and §§ 13.1 and 13.3, and by adding new §§ 13.5 "Formal complaints" and 13.7 "Records, documents and reports".
3. By revising Subpart C by amending the table of contents, by adding a new § 13.13 "Consent orders", by amending § 13.20, by amending the title of § 13.21, and by redesignating § 13.67 as § 13.27 in Subpart C.
4. By revising Subpart D by amending §§ 13.31 and 13.59(b), by adding a new § 13.59(c), and by redesignating § 13.67 as § 13.27 in Subpart C.
5. By revising Subpart E by amending §§ 13.75 and 13.83(a).
6. By adding a new Subpart F "Formal Fact-finding Investigation Under an Order of Investigation".
7. By deleting the word "act" or "Act" wherever it may appear as a reference to the Federal Aviation Act of 1958 and inserting in lieu thereof the word "FAAct".
8. By revising Part 13 by making minor editorial changes.

As amended Part 13 of the Federal Aviation Regulations reads in its entirety as follows:

## PART 13—INVESTIGATIVE AND ENFORCEMENT PROCEDURES

### Subpart A—Investigative Procedures

#### Sec.

- 13.1 Reports of violations.
- 13.3 Investigations (General).
- 13.5 Formal complaints.
- 13.7 Records, documents and reports.

### Subpart B—Administrative Actions

- 13.11 Administrative disposition of certain violations.

### Subpart C—Legal Enforcement Actions

- 13.13 Consent orders.
- 13.15 Civil penalties: Federal Aviation Act of 1958.
- 13.16 Civil penalties: Hazardous Materials Transportation Act.
- 13.17 Seizure of aircraft.
- 13.19 Certificate action.
- 13.20 Orders of compliance, cease and desist and other orders.
- 13.21 Military personnel.
- 13.23 Criminal penalties.
- 13.25 Injunctions.
- 13.27 Final order of Hearing Officer in certificate of aircraft registration proceedings.

### Subpart D—Rules of Practice for FAA Hearings

- 13.31 Applicability.
- 13.33 Appearances.
- 13.35 Request for hearing.
- 13.37 Hearing Officer's powers.
- 13.39 Disqualification of Hearing Officer.
- 13.41 [Reserved].
- 13.43 Service and filing of pleadings, motions, and documents.
- 13.44 Computation of time and extension of time.
- 13.45 Amendment of notice and answer.
- 13.47 Withdrawal of notice or request for hearing.
- 13.49 Motions.
- 13.51 Intervention.
- 13.53 Depositions.
- 13.55 Notice of hearing.
- 13.57 Subpoenas and witness fees.
- 13.59 Evidence.
- 13.61 Argument and submittals.
- 13.63 Record.

### Subpart E—Orders of Compliance Under the Hazardous Materials Transportation Act

- 13.71 Applicability.
- 13.73 Notice of proposed order of compliance.
- 13.75 Reply or request for hearing.
- 13.77 Consent order of compliance.
- 13.79 Hearing.
- 13.81 Order of immediate compliance.
- 13.83 Appeal.
- 13.85 Filing, service, and computation of time.
- 13.87 Extension of time.

### Subpart F—Formal Fact-Finding Investigation Under an Order of Investigation

- 13.101 Applicability.
- 13.103 Order of investigation.
- 13.105 Notification.
- 13.107 Designation of additional parties.

## Sec.

- 13.109 Convening the investigation.
- 13.111 Subpoenas.
- 13.113 Noncompliance with the investigative process.
- 13.115 Public proceedings.
- 13.117 Conduct of investigative proceeding or deposition.
- 13.119 Rights of persons against self-incrimination.
- 13.121 Witness fees.
- 13.123 Submission by party to the investigation.
- 13.125 Depositions.
- 13.127 Reports, decisions and orders.
- 13.129 Post-investigation action.
- 13.131 Other procedures.

Authority: Secs. 302(f), 303(d), 313(a) and (c), 501-506, 601-608, 1001, 1002(a), (b) and (c), and 1004 through 1009, Federal Aviation Act of 1958 (49 U.S.C. 1342(f), 1344(d), 1354(a) and (c), 1482(a), (b), and (c), and 1484 through 1489); Secs. 109, 110, and 111, Hazardous Materials Transportation Act (49 U.S.C. 1808, 1809, and 1810); Sec. 6(c), Department of Transportation Act (49 U.S.C. 1655(c)); Secs. 27 and 30, Airport and Airway Development Act of 1970 (49 U.S.C. 1727 and 1730); Sec. 201(a) of the Organized Crime Control Act of 1970 (18 U.S.C. 8002 and 8004); and Secs. 1.47(f) and (k), Regulations of the Office of the Secretary of Transportation (49 CFR 1.47).

## Subpart A—Investigative Procedures

### § 13.1 Reports of violations.

(a) Any person who knows of a violation of the Federal Aviation Act of 1958, the Hazardous Materials Transportation Act relating to the transportation or shipment by air of hazardous materials, or the Airport and Airway Development Act of 1970, or of any regulation or order issued under those acts should report it to appropriate personnel of any FAA regional or district office.

(b) Each report made under this section, together with any other information the FAA may have that is relevant to the matter reported, will be reviewed by FAA personnel to determine the nature and type of any additional investigation or enforcement action the FAA will take.

### § 13.3 Investigations (general).

(a) Under the Federal Aviation Act of 1958 (49 U.S.C. 1301 et seq.), the Airport and Airway Development Act of 1970 (49 U.S.C. 1701 et seq.), the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.), and the Regulations of the Office of the Secretary of Transportation (49 CFR 1 et seq.), the Administrator may conduct investigations, hold hearings, issue subpoenas, require the production of relevant documents, records, and property, and take evidence and depositions.

(b) For the purpose of investigating alleged violations of the Federal Aviation Act of 1958 (except Title V),

the Airport and Airway Development Act of 1970, or the Hazardous Materials Transportation Act, or any regulation or order issued under these Acts, the Administrator's authority has been delegated to the various services and offices for matters within their respective areas for all routine investigations. When the compulsory processes of sections 313 and 1004 (49 U.S.C. 1354 and 1484) of the Federal Aviation Act, or section 109 of the Hazardous Materials Transportation Act (49 U.S.C. 1808) are invoked, the Administrator's authority has been delegated to the Chief Counsel, the Deputy Chief Counsel, each Assistant Chief Counsel, and each Regional Counsel. For the purpose of investigating alleged violations of Title V of the Federal Aviation Act, or any regulation or order issued under it, the Administrator's authority has been delegated to the Chief Counsel, the Deputy Chief Counsel, and the Aeronautical Center Counsel.

(c) In conducting formal investigations, the Chief Counsel, the Deputy Chief Counsel, each Assistant Chief Counsel, each Regional Counsel, and the Aeronautical Center Counsel may issue an order of investigation in accordance with Subpart F of this part.

### § 13.5 Formal complaints.

(a) Any person may file a complaint with the Administrator with respect to anything done or omitted to be done by any person in contravention of any provision of any Act or of any regulation or order issued under it, as to matters within the jurisdiction of the Administrator. This section does not apply to complaints against the Administrator or employees of the FAA acting within the scope of their employment.

(b) Complaints filed under this section must—

(1) Be submitted in writing and identified as a complaint filed for the purpose of seeking an appropriate order or other enforcement action.

(2) Be submitted to the Federal Aviation Administration, Office of the Chief Counsel, Attention: Enforcement Docket (AGC-27), 800 Independence Avenue, S.W., Washington, D.C. 20591;

(3) Set forth the name and address, if known, of each person who is the subject of the complaint and, with respect to each person, the specific provisions of the Act or regulation or order that the complainant believes were violated;

(4) Contain a concise but complete statement of the facts relied upon to substantiate each allegation;

(5) State the name, address and telephone number of the person filing the complaint; and

(6) Be signed by the person filing the complaint or a duly authorized representative.

(c) Complaints which do not meet the requirements of paragraph (b) of this section will be considered reports under § 13.1.

(d) Complaints which meet the requirements of paragraph (b) of this section will be docketed and a copy mailed to each person named in the complaint.

(e) Any complaint filed against a member of the Armed Forces of the United States acting in the performance of official duties shall be referred to the Secretary of the Department concerned for action in accordance with the procedures set forth in § 13.21 of this part.

(f) The person named in the complaint shall file an answer within 20 days after service of a copy of the complaint.

(g) After the complaint has been answered or after the allotted time in which to file an answer has expired, the Administrator shall determine if there are reasonable grounds for investigating the complaint.

(h) If the Administrator determines that a complaint does not state facts which warrant an investigation or action, the complaint may be dismissed without a hearing and the reason for the dismissal shall be given, in writing, to the person who filed the complaint and the person named in the complaint.

(i) If the Administrator determines that reasonable grounds exist, an informal investigation may be initiated or an order of investigation may be issued in accordance with Subpart F of this part, or both. Each person named in the complaint shall be advised which official has been delegated the responsibility under § 13.3(b) or (c) for conducting the investigation.

(j) If the investigation substantiates the allegations set forth in the complaint, a notice of proposed order may be issued or other enforcement action taken in accordance with this part.

(k) The complaint and other pleadings and official FAA records relating to the disposition of the complaint are maintained in current docket form in the Enforcement Docket (AGC-27), Office of the Chief Counsel, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591. Any interested person may examine any docketed material at that office, at any time after the docket is established, except material that is ordered withheld from the public under applicable law or

regulations, and may obtain a photostatic or duplicate copy upon paying the cost of the copy.

#### § 13.7 Records, documents and reports.

Each record, document and report that the Federal Aviation Regulations require to be maintained, exhibited or submitted to the Administrator may be used in any investigation conducted by the Administrator; and, except to the extent the use may be specifically limited or prohibited by the section which imposes the requirement, the records, documents and reports may be used in any civil penalty action, certificate action, or other legal proceeding.

### Subpart B—Administrative Actions

#### § 13.11 Administrative disposition of certain violations.

(a) If it is determined that a violation or an alleged violation of the Federal Aviation Act of 1958, or an order or regulation issued under it, or of the Hazardous Materials Transportation Act, or an order or regulation issued under it, does not require legal enforcement action, an appropriate official of the FAA field office responsible for processing the enforcement case or other appropriate FAA official may take administrative action in disposition of the case.

(b) An administrative action under this section does not constitute a formal adjudication of the matter, and may be taken by issuing the alleged violator—

- (1) A "Warning Notice" which recites available facts and information about the incident or condition and indicates that it may have been a violation; or
- (2) A "Letter of Correction" which confirms the FAA decision in the matter and states the necessary corrective action the alleged violator has taken or agrees to take. If the agreed corrective action is not fully completed, legal enforcement action may be taken.

### Subpart C—Legal Enforcement Actions

#### § 13.13 Consent orders.

(a) At any time before the issuance of an order under this subpart, the official who issued the notice and the person subject to the notice may agree to dispose of the case by the issuance of a consent order by the official.

(b) A proposal for a consent order, submitted to the official who issued the notice, under this section must include—

- (1) A proposed order;
- (2) An admission of all jurisdictional facts;
- (3) An express waiver of the right to further procedural steps and of all rights to judicial review; and

(4) An incorporation by reference of the notice and an acknowledgment that the notice may be used to construe the terms of the order.

(c) If the issuance of a consent order has been agreed upon after the filing of a request for hearing in accordance with Subpart D of this part, the proposal for a consent order shall include a request to be filed with the Hearing Officer withdrawing the request for a hearing and requesting that the case be dismissed.

#### § 13.15 Civil penalties: Federal Aviation Act of 1958.

(a) Under section 901 of the Federal Aviation Act of 1958 (49 U.S.C. 1471), a person who violates any provision of Title III, V, VI, or XII of that Act, or any regulation or order issued under one of those titles, is subject to a civil penalty of not more than \$1,000 for each violation.

(b) The Administrator may compromise any civil penalty. If a civil penalty is contemplated and it is considered advisable to compromise it, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, the Aeronautical Center Counsel (as to matters under Title V of the FAA Act), or the Regional Counsel concerned sends a letter to the person charged with the violation, advising him of the charges against him and the law, regulation, or order that he is charged with violating, and offering to compromise the penalty. The person charged with the violation may present, to the official who signed the letter, any oral or written material or information in answer to the charges, explaining, mitigating, or denying the violation, or showing extenuating circumstances. Material or information so presented is considered in making the final determination as to probable liability for a civil penalty, or the amount for which it will be compromised.

(c) If the person charged with the violation offers to compromise for a specific amount, he shall send a certified check or money order for that amount, payable to the Federal Aviation Administration. The Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, the Aeronautical Center Counsel (as to matters under Title V of the FAA Act), or the Regional Counsel concerned may accept or refuse it.

(d) If the compromise amount is accepted, the person charged with the violation is notified, by letter, that the acceptance is full settlement of the civil penalty for the violation.

(e) If a compromise settlement of the civil penalty cannot be made, the

Administrator may instigate proceedings in a United States District Court, under section 903 of the FAA Act (49 U.S.C. 1473), to collect the penalty.

#### § 13.16 Civil penalties: Hazardous Materials Transportation Act.

(a) Section 110 of the Hazardous Materials Transportation Act (49 U.S.C. 1809) provides for civil penalties, for persons who knowingly commit acts that are violations of that Act, or of any regulation issued under it, of not more than \$10,000 for each violation.

(b) The authority under section 110 of the Hazardous Materials Transportation Act to initiate, compromise, and assess civil penalties, and refer cases to the United States Attorney General for collection of such civil penalties for violations of that Act, or of regulations dealing with transportation or shipment of hazardous materials by air issued under that Act, as delegated to the Administrator, has been redelegated to the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, and to each Regional Counsel.

(c) The redelegation in paragraph (b) of this section is in addition to the authority to take civil penalty action under § 13.15 of this part with respect to violations of the Federal Aviation Act of 1958, and regulations, or orders issued under that Act, involving transportation or shipment of hazardous materials, as delegated to the Administrator.

(d) If a civil penalty is contemplated in a case involving the transportation or shipment by air of hazardous materials, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned sends to the person charged with the violation a notice of proposed civil penalty advising the person of the charges and stating the amount of the civil penalty proposed to be assessed. Within 30 days after the service of the notice, the person charged with a violation may—

(1) Present to the official who signed the notice written information in answer to the charges, and, if desired, request a conference with the official who signed the notice in order to present information in answer to the charges;

(2) Offer to pay the amount of the civil penalty proposed to be assessed, or offer to pay a reduced amount and submit reasons for the reduction; or

(3) Request a hearing in accordance with Subpart D of this part.

(e) Within 10 days after the receipt of a reply to any submission made in accordance with paragraphs (d)(1) and (d)(2) of this section, the person charged with a violation may request a hearing



in accordance with Subpart D of this part.

(f) The person charged with the violation may pay the amount of the civil penalty proposed to be assessed, or an amount agreed upon, by sending a certified check or money order for that amount, payable to the Federal Aviation Administration, to the official who issued the notice of proposed civil penalty. The official then issues an order assessing the civil penalty in the proposed or agreed upon amount.

(g) If the person charged with the violation requests a hearing, the procedure in Subpart D of this part applies. At the close of the hearing, the Hearing Officer will, either on the record or subsequently, in writing, issue—

(1) A decision which includes the reasons for the decision and order; and

(2) An order which either—

(i) Dismisses the charges; or

(ii) Sets forth the violation and assesses a civil penalty not greater than the amount proposed in the notice of proposed civil penalty.

(h) Either party may appeal from the Hearing Officer's decision to the Administrator by filing a notice of appeal within 20 days after the date of the decision and serving a copy on the other party. The appellant shall file an appeal brief within 40 days after the date of the decision and serve a copy on the other party. Any reply brief must be filed within 20 days after service of the appeal brief. A copy of the reply brief must be served on the appellant.

(i) If no appeal is filed from the Hearing Officer's decision and order or if an appeal is withdrawn by the appellant prior to the Administrator's decision, the order of the Hearing Officer dismissing the charges or assessing the civil penalty is the final agency order in the case.

(j) If an appeal is filed from the Hearing Officer's order the Administrator reviews the record of the hearing, and issues a decision and order dismissing, reversing, modifying, or affirming the Hearing Officer's order. The Administrator does not assess a civil penalty in an amount greater than the amount proposed in the notice of proposed civil penalty. The Administrator's decision includes the reasons for the decision, and the Administrator's order is the final agency order in the case.

(k) If the person charged with the violation does not request a hearing in accordance with Subpart D of this part, and does not pay the amount of the civil penalty proposed to be assessed, or an amount agreed upon, the official who issued the notice of proposed civil penalty issues an order assessing a civil

penalty in an amount the official determines to be appropriate or takes such other action as may be appropriate. This official does not assess an amount greater than the amount proposed in the notice of proposed civil penalty. The order issued under this paragraph is the final agency order in the case.

(l) An order issued under this section assessing a civil penalty against a person charged with a violation is issued only after the consideration of—

(1) The nature and circumstances of the violation;

(2) The extent and gravity of the violation;

(3) The person's degree of culpability;

(4) The person's history of prior violations;

(5) The person's ability to pay;

(6) The effect on the person's ability to continue in business; and

(7) Such other matters as justice may require.

(m) If the person charged with a violation asserts that he or she cannot pay the proposed penalty or assessment or that it would prevent him or her from continuing in business, the person charged should provide substantiating information in support of the assertion to the official who is issuing the civil penalty assessment.

(n) If an assessed civil penalty is not paid within 60 days after service of the order assessing it, the official who issued the notice of proposed penalty may refer to it to the United States Attorney General, or the delegate of the Attorney General, with a request that an action to collect the assessed penalty be brought in the appropriate United States District Court.

(o) The amount of an assessed civil penalty may be compromised by the official who assessed the penalty at any time prior to its referral to the United States Attorney General.

(p) Filing and service of documents under this section shall be accomplished in accordance with § 13.43; and the periods of time specified in this section shall be computed in accordance with § 13.44.

(q) The officer who signed the notice of proposed civil penalty, for good cause shown, may grant an extension of time to file any document specified in this section, except documents to be filed with the Administrator. Extensions of time to file documents with the Administrator may be granted by the Administrator upon written request, served upon all parties, and for good cause shown.

#### § 13.17 Seizure of aircraft.

(a) Under section 903 of the Federal Aviation Act of 1958 (49 U.S.C. 1473), a

State or Federal law enforcement officer, or a Federal Aviation Administration safety inspector, authorized in an order of seizure issued by the Regional Director of the region, or by the Chief Counsel, may summarily seize an aircraft that is involved in a violation for which a civil penalty may be imposed on its owner or operator.

(b) Each person seizing an aircraft under this section shall place it in the nearest available and adequate public storage facility in the judicial district in which it was seized.

(c) The Regional Director or Chief Counsel, without delay, sends a written notice and a copy of this section, to the registered owner of the seized aircraft, and to each other persons shown by FAA records to have an interest in it, stating the—

(1) Time, date, and place of seizure;

(2) Name and address of the custodian of the aircraft;

(3) Reasons for the seizure, including the violations believed, or judicially determined, to have been committed; and

(4) Amount that may be tendered as—

(i) A compromise of a civil penalty for the alleged violation; or

(ii) Payment for a civil penalty imposed by a Federal court for a proven violation.

(d) The Chief Counsel or Regional Counsel of the region, in which an aircraft is seized under this section immediately sends a report to the United States District Attorney for the judicial district in which it was seized, requesting the District Attorney to institute proceedings to enforce a lien against the aircraft.

(e) The Regional Director or Chief Counsel directs the release of a seized aircraft whenever—

(1) The alleged violator pays a civil penalty or an amount agreed upon in compromise, and the costs of seizing, storing, and maintaining the aircraft;

(2) The aircraft is seized under an order of a Federal Court in proceedings in rem to enforce a lien against the aircraft, or the United States District Attorney for the judicial district concerned notifies the FAA that the District Attorney refuses to institute those proceedings; or

(3) A bond in the amount and with the sureties prescribed by the Chief Counsel or the Regional Counsel is deposited, conditioned on payment of the penalty, or the compromise amount, and the costs of seizing, storing, and maintaining the aircraft.

#### § 13.19 Certificate action.

(a) Under section 609 of the Federal Aviation Act of 1958 (49 U.S.C. 1429), the

Administrator may reinspect any civil aircraft, aircraft engine, propeller, appliance, air navigation facility, or air agency, and may re-examine any civil airman. Under section 501(e) of the FAA Act, any Certificate of Aircraft Registration may be suspended or revoked by the Administrator for any cause that renders the aircraft ineligible for registration.

(b) If, as a result of such a reinspection re-examination, or other investigation made by the Administrator under section 609 of the FAA Act, the Administrator determines that the public interest and safety in air commerce requires it, the Administrator may issue an order amending, suspending, or revoking, all or part of any type certificate, production certificate, airworthiness certificate, airman certificate, air carrier operating certificate, air navigation facility certificate, or air agency certificate. This authority may be exercised for remedial purposes in cases involving the Hazardous Materials Transportation Act (49 U.S.C. 1801 et seq.) or regulations issued under that Act. This authority is also exercised by the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, and the Regional Counsel concerned. If the Administrator finds that any aircraft registered under Part 47 of this chapter is ineligible for registration or if the holder of a Certificate of Aircraft Registration has refused or failed to submit Part 1, AC Form 8050-73, as required by § 47.44 of this chapter, the Administrator issues an order suspending or revoking that certificate. This authority as to aircraft found ineligible for registration is also exercised by the Aeronautical Center Counsel.

(c) Before issuing an order under paragraph (b) of this section, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, the Regional Counsel concerned, or the Aeronautical Center Counsel (as to matters under Title V of the FAA Act) advises the certificate holder of the charges or other reasons upon which the Administrator bases the proposed action and, except in an emergency, allows the holder to answer any charges and to be heard as to why the certificate should not be amended, suspended, or revoked. The holder may, by checking the appropriate box on the form that is sent to the holder with the notice of proposed certificate action, elect to—

- (1) Admit the charges and surrender his or her certificate;
- (2) Answer the charges in writing;
- (3) Request that an order be issued in accordance with the notice of proposed

certificate action so that the certificate holder may appeal to the National Transportation Safety Board, if the charges concerning a matter under Title VI of the FAA Act;

(4) Request an opportunity to be heard in an informal conference with the FAA counsel; or

(5) Request a hearing in accordance with Subpart D of this part if the charges concern a matter under Title V of the FAA Act.

Except as provided in § 13.35(b), unless the certificate holder returns the form and, where required, an answer or motion, with a postmark of not later than 15 days after the date of receipt of the notice, the order of the Administrator is issued as proposed. If the certificate holder has requested an informal conference with the FAA counsel and the charges concern a matter under Title V of the FAA Act, the holder may after that conference also request a formal hearing in writing with a postmark of not later than 10 days after the close of the conference. After considering any information submitted by the certificate holder, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, the Regional Counsel concerned, or the Aeronautical Center Counsel (as to matters under Title V of the FAA Act) issues the order of the Administrator, except that if the holder has made a valid request for a formal hearing on a matter under Title V of the FAA Act initially or after an informal conference, Subpart D of this part governs further proceedings.

(d) Any person whose certificate is affected by an order issued under this section may appeal to the National Transportation Safety Board. If the certificate holder files an appeal with the Board, the Administrator's order is stayed unless the Administrator advises the Board that an emergency exists and safety in air commerce requires that the order become effective immediately. If the Board is so advised, the order remains effective and the Board shall finally dispose of the appeal within 60 days after the date of the advice. This paragraph does not apply to any person whose Certificate of Aircraft Registration is affected by an order issued under this section.

**§ 13.20 Orders of compliance, cease and desist orders, orders of denial and other orders.**

(a) This section applies to the issuance of orders of compliance, cease and desist orders, orders of denial and other orders as the Administrator shall deem necessary to carry out the provisions of the Federal Aviation Act

of 1958 and the Airport and Airway Development Act of 1970. This section does not apply to orders issued pursuant to sections 602 and 609 of the FAA Act.

(b) Unless the Administrator determines that an emergency exists and safety in air commerce requires the immediate issuance of an order under this section, the person subject to the order shall be provided with notice prior to issuance.

(c) Within 30 days after service of the notice, the person subject to the order may reply in writing or request a hearing in accordance with Subpart D of this part.

(d) If a reply is filed, as to any charges not dismissed or not subject to a consent order, the person subject to the order may, within 10 days after receipt of notice that the remaining charges are not dismissed, request a hearing in accordance with Subpart D of this part.

(e) Failure to request a hearing within the period provided in paragraphs (c) or (d) of this section—

(1) Constitutes a waiver of the right to appeal and the right to a hearing, and

(2) Authorizes the official who issued the notice to find the facts to be as alleged in the notice, or as modified as the official may determine necessary based on any written response, and to issue an appropriate order, without further notice or proceedings.

(f) If a hearing is requested in accordance with paragraph (c) or (d) of this section, the procedure of Subpart D of this part applies. At the close of the hearing, the Hearing Officer, on the record or subsequently in writing, shall set forth findings and conclusions and the reasons therefor, and either—

(1) Dismiss the notice; or

(2) Issue an order.

(g) Any party to the hearing may appeal from the order of the Hearing Officer by filing a notice of appeal with the Administrator within 20 days after the date of issuance of the order.

(h) If a notice of appeal is not filed from the order issued by a Hearing Officer, such order is the final agency order.

(i) Any person filing an appeal authorized by paragraph (g) of this section shall file an appeal brief with the Administrator within 40 days after the date of issuance of the order, and serve a copy on the other party. A reply brief must be filed within 20 days after service of the appeal brief and a copy served on the appellant.

(j) On appeal the Administrator reviews the available record of the proceeding, and issues an order dismissing, reversing, modifying or affirming the order. The Administrator's

order includes the reasons for the Administrator's action.

(k) For good cause shown, requests for extensions of time to file any document under this section may be granted by—

(1) The official who issued the order, if the request is filed prior to the designation of a Hearing Officer; or

(2) The Hearing Officer, if the request is filed prior to the filing of a notice of appeal; or

(3) The Administrator, if the request is filed after the filing of a notice of appeal.

(l) Except in the case of an appeal from the decision of a Hearing Officer, the authority of the Administrator under this section is also exercised by the Chief Counsel, Deputy Chief Counsel, each Assistant Chief Counsel and each Regional Counsel and the Aeronautical Center Counsel (as to matters under Title V of the Federal Aviation Act of 1958).

(m) Filing and service of documents under this section shall be accomplished in accordance with § 13.43; and the periods of time specified in this section shall be computed in accordance with § 13.44.

#### § 13.21 Military personnel.

If a report made under this part indicates that, while performing official duties, a member of the Armed Forces, or a civilian employee of the Department of Defense who is subject to the Uniform Code of Military Justice (10 U.S.C. Ch. 47), has violated the Federal Aviation Act of 1958, or a regulation or order issued under it, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned sends a copy of the report to the appropriate military authority for such disciplinary action as that authority considers appropriate and a report to the Administrator thereon.

#### § 13.23 Criminal penalties.

(a) Sections 902 and 1203 of the Federal Aviation Act of 1958 (49 U.S.C. 1472 and 1523), provide criminal penalties for any person who knowingly and willfully violates specified provisions of that Act, or any regulation or order issued under those provisions. Section 110(b) of the Hazardous Materials Transportation Act (49 U.S.C. 1809(b)) provides for a criminal penalty of a fine of not more than \$25,000, imprisonment for not more than five years, or both, for any person who willfully violates a provision of that Act or a regulation or order issued under it.

(b) If an inspector or other employee of the FAA becomes aware of a possible violation of any criminal provision of the Federal Aviation Act of 1958 (except

a violation of section 902 (i) through (m) which is reported directly to the Federal Bureau of Investigation), or of the Hazardous Materials Transportation Act, relating to the transportation or shipment by air of hazardous materials, he or she shall report it to the Office of the Chief Counsel or the Regional Counsel concerned. If appropriate, that office refers the report to the Department of Justice for criminal prosecution of the offender. If such an inspector or other employee becomes aware of a possible violation of a Federal statute that is within the investigatory jurisdiction of another Federal agency, he or she shall immediately report it to that agency according to standard FAA practices.

#### § 13.25 Injunctions.

(a) Whenever it is determined that a person has engaged, or is about to engage, in any act or practice constituting a violation of the Federal Aviation Act of 1958, or any regulation or order issued under it for which the FAA exercises enforcement responsibility, or, with respect to the transportation or shipment by air of any hazardous materials, in any act or practice constituting a violation of the Hazardous Materials Transportation Act, or any regulation or order issued under it for which the FAA exercises enforcement responsibility, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, the Regional Counsel concerned, or the Aeronautical Center Counsel may request the United States Attorney General, or the delegate of the Attorney General, to bring an action in the appropriate United States District Court for such relief as is necessary or appropriate, including mandatory or prohibitive injunctive relief, interim equitable relief, and punitive damages, as provided by section 1007 of the Federal Aviation Act of 1958 (49 U.S.C. 1487) and section 111(a) of the Hazardous Materials Transportation Act (49 U.S.C. 1810).

(b) Whenever it is determined that there is substantial likelihood that death, serious illness, or severe personal injury, will result from the transportation by air of a particular hazardous material before an order of compliance proceeding, or other administrative hearing or formal proceeding to abate the risk of the harm can be completed, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned may bring, or request the United States Attorney General to bring, an action in the appropriate United States District Court

for an order suspending or restricting the transportation by air of the hazardous material or for such other order as is necessary to eliminate or ameliorate the imminent hazard, as provided by section 111(b) of the Hazardous Materials Transportation Act (49 U.S.C. 1810).

#### § 13.27 Final order of Hearing Officer in certificate of aircraft registration proceedings.

(a) If, in proceedings under section 501(b) of the Federal Aviation Act of 1958 (49 USC 1401), the Hearing Officer determines that the holder of the Certificate of Aircraft Registration has refused or failed to submit Part 1, AC Form 8050-73, as required by § 47.44 of this chapter, or that the aircraft is ineligible for a Certificate of Aircraft Registration, the Hearing Officer shall suspend or revoke the respondent's certificate, as proposed in the notice of proposed certificate action.

(b) If the final order of the Hearing Officer makes a decision on the merits, it shall contain a statement of the findings and conclusions of law on all material issues of fact and law. If the Hearing Officer finds that the allegations of the notice have been proven, but that no sanction is required, the Hearing Officer shall make appropriate findings and issue an order terminating the notice. If the Hearing Officer finds that the allegations of the notice have not been proven, the Hearing Officer shall issue an order dismissing the notice. If the Hearing Officer finds it to be equitable and in the public interest, the Hearing Officer shall issue an order terminating the proceeding upon payment by the respondent of a civil penalty in an amount agreed upon by the parties.

(c) If the order is issued in writing, it shall be served upon the parties.

#### Subpart D—Rules of Practice for FAA Hearings

##### § 13.31 Applicability.

This subpart applies to proceedings in which a hearing has been requested in accordance with §§ 13.16(d)(3), 13.16(e), 13.19(c)(5), 13.20(c), 13.20(d), 13.75(a)(2), 13.75(b), or 13.81(e).

##### § 13.33 Appearances.

Any party to a proceeding under this subpart may appear and be heard in person or by attorney.

##### § 13.35 Request for hearing.

(a) A request for hearing must be made in writing to the Hearing Docket, Room 914E, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591.



It must describe briefly the action proposed by the FAA, and must contain a statement that a hearing is requested. A copy of the request for hearing and a copy of the answer required by paragraph (b) of this section must be served on the official who issued the notice of proposed action.

(b) An answer to the notice of proposed action must be filed with the request for hearing. All allegations in the notice not specifically denied in the answer are deemed admitted.

(c) Within 15 days after service of the copy of the request for hearing, the official who issued the notice of proposed action forwards a copy of that notice, which serves as the complaint, to the Hearing Docket.

#### § 13.37 Hearing Officer's powers.

Any Hearing Officer may—

- (a) Give notice concerning, and hold, prehearing conferences and hearings;
- (b) Administrator oaths and affirmations;
- (c) Examine witnesses;
- (d) Adopt procedures for the submission of evidence in written form;
- (e) Issue subpoenas and take depositions or cause them to be taken;
- (f) Rule on offers of proof;
- (g) Receive evidence;
- (h) Regulate the course of the hearing;
- (i) Hold conferences, before and during the hearing, to settle and simplify issues by consent of the parties;
- (j) Dispose of procedural requests and similar matters; and
- (k) Issue decisions, make findings of fact, make assessments, and issue orders, as appropriate.

#### § 13.39 Disqualification of Hearing Officer.

If disqualified for any reason, the Hearing Officer shall withdraw from the case.

#### § 13.41 [Reserved]

#### § 13.43 Service and filing of pleadings, motions, and documents.

(a) Copies of all pleadings, motions, and documents filed with the Hearing Docket must be served upon all parties to the proceedings by the person filing them.

(b) Service may be made by personal delivery or by mail.

(c) A certificate of service shall accompany all documents when they are tendered for filing and shall consist of a certificate of personal delivery or a certificate of mailing, executed by the person making the personal delivery or mailing the document.

(d) Whenever proof of service by mail is made, the date of mailing or the date as shown on the postmark shall be the date of service, and where personal

service is made, the date of personal delivery shall be the date of service.

(e) The date of filing is the date the document is actually received.

#### § 13.44 Computation of time and extension of time.

(a) In computing any period of time prescribed or allowed by this subpart, the date of the act, event, default, notice or order after which the designated period of time begins to run is not to be included in the computation. The last day of the period so computed is to be included unless it is a Saturday, Sunday, or legal holiday for the FAA, in which event the period runs until the end of the next day which is neither a Saturday, Sunday nor a legal holiday.

(b) Upon written request filed with the Hearing Docket and served upon all parties, and for good cause shown, a Hearing Officer may grant an extension of time to file any documents specified in this subpart.

#### § 13.45 Amendment of notice and answer.

At any time more than 10 days before the date of hearing, any party may amend his or her notice, answer, or other pleading, by filing the amendment with the Hearing Officer and serving a copy of it on each other party. After that time, amendments may be allowed only in the discretion of the Hearing Officer. If an amendment to an initial pleading has been allowed, the Hearing Officer shall allow the other parties a reasonable opportunity to answer.

#### § 13.47 Withdrawal of notice or request for hearing.

At any time before the hearing, the FAA counsel may withdraw the notice of proposed action, and the party requesting the hearing may withdraw the request for hearing.

#### § 13.49 Motions.

(a) Motion to dismiss for insufficiency. A respondent who requests a formal hearing may, in place of an answer, file a motion to dismiss for failure of the allegations in the notice of proposed action to state a violation of the FAA Act or of this chapter or to show lack of qualification of the respondent. If the Hearing Officer denies the motion, the respondent shall file an answer within 10 days.

(b) [Reserved]

(c) Motion for more definite statement. The certificate holder may, in place of an answer, file a motion that the allegations in the notice be made more definite and certain. If the Hearing Officer grants the motion, the FAA counsel shall comply within 10 days after the date it is granted. If the Hearing Officer denies the motion the

certificate holder shall file an answer within 10 days after the date it is denied.

(d) Motion for judgment on the pleadings. After the pleadings are closed, either party may move for a judgment on the pleadings.

(e) Motion to strike. Upon motion of either party, the Hearing Officer may order stricken, from any pleadings, any insufficient allegation or defense, or any immaterial, impertinent, or scandalous matter.

(f) Motion for production of documents. Upon motion of any party showing good cause, the Hearing Officer may, in the manner provided by Rule 34, Federal Rules of Civil Procedure, order any party to produce any designated document, paper, book, account, letter, photograph, object, or other tangible thing, that is not privileged, that constitutes or contains evidence relevant to the subject matter of the hearings, and that is in the party's possession, custody, or control.

(g) Consolidation of motions. A party who makes a motion under this section shall join with it all other motions that are then available to the party. Any objection that is not so raised is considered to be waived.

(h) Answers to motions. Any party may file an answer to any motion under this section within 5 days after service of the motion.

#### § 13.51 Intervention.

Any person may move for leave to intervene in a proceeding and may become a party thereto, if the Hearing Officer, after the case is sent to the Hearing Officer for hearing, finds that the person may be bound by the order to be issued in the proceedings or has a property or financial interest that may not be adequately represented by existing parties, and that the intervention will not unduly broaden the issues or delay the proceedings. Except for good cause shown, a motion for leave to intervene may not be considered if it is filed less than 10 days before the hearing.

#### § 13.53 Depositions.

After the respondent has filed a request for hearing and an answer, either party may take testimony by deposition in accordance with section 1004 of the Federal Aviation Act of 1958 (49 U.S.C. 1484) or Rule 26, Federal Rules of Civil Procedure.

#### § 13.55 Notice of hearing.

The Hearing Officer shall set a reasonable date, time, and place for the hearing, and shall give the parties adequate notice thereof and of the nature of the hearing. Due regard shall

be given to the convenience of the parties with respect to the place of the hearing.

**§ 13.57 Subpoenas and witness fees.**

(a) The Hearing Officer to whom a case is assigned may, upon application by any party to the proceeding, issue subpoenas requiring the attendance of witnesses or the production of documentary or tangible evidence at a hearing or for the purpose of taking depositions. However, the application for producing evidence must show its general relevance and reasonable scope. This paragraph does not apply to the attendance of FAA employees or to the production of documentary evidence in the custody of such an employee at a hearing.

(b) A person who applies for the production of a document in the custody of an FAA employee must follow the procedure in § 13.49(f). A person who applies for the attendance of an FAA employee must send the application, in writing, to the Hearing Officer setting forth the need for that employee's attendance.

(c) A witness in a proceeding under this subpart is entitled to the same fees and mileage as is paid to a witness in a court of the United States under comparable circumstances. The party at whose instance the witness is subpoenaed or appears shall pay the witness fees.

(d) Notwithstanding the provisions of paragraph (c) of this section, the FAA pays the witness fees and mileage if the Hearing Officer who issued the subpoena determines, on the basis of a written request and good cause shown, that—

- (1) The presence of the witness will materially advance the proceeding; and
- (2) The party at whose instance the witness is subpoenaed would suffer a serious hardship if required to pay the witness fees and mileage.

**§ 13.59 Evidence.**

(a) Each party to a hearing may present the parties case or defense by oral or documentary evidence, submit evidence in rebuttal, and conduct such cross-examination as may be needed for a full disclosure of the facts.

(b) Except with respect to affirmative defenses and orders of denial, the burden of proof is upon the FAA counsel.

(c) The Hearing Officer may order information contained in any report or document filed or in any testimony given pursuant to this subpart withheld from public disclosure when, in the judgment of the Hearing Officer, disclosure would adversely affect the

interests of any person and is not required in the public interest or is not otherwise required by statute to be made available to the public. Any person may make written objection to the public disclosure of such information, stating the ground for such objection.

**§ 13.61 Argument and submittals.**

The Hearing Officer shall give the parties adequate opportunity to present arguments in support of motions, objections, and the final order. The Hearing Officer may determine whether arguments are to be oral or written. At the end of the hearing the Hearing Officer may, in the discretion of the Hearing Officer, allow each party to submit written proposed findings and conclusions and supporting reasons for them.

**§ 13.63 Record.**

The testimony and exhibits presented at a hearing, together with all papers, requests, and rulings filed in the proceedings are the exclusive basis for the issuance of an order. Either party may obtain a transcript from the official reporter upon payment of the fees fixed therefor.

**Subpart E—Orders of Compliance Under the Hazardous Materials Transportation Act**

**§ 13.71 Applicability.**

Whenever the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned has reason to believe that a person is engaging in the transportation or shipment by air of hazardous materials in violation of the Hazardous Materials Transportation Act, or any regulation or order issued under it for which the FAA exercises enforcement responsibility, and the circumstances do not require the issuance of an order of immediate compliance, he may conduct proceedings pursuant to section 109 of that Act (49 U.S.C. 1808) to determine the nature and extent of the violation, and may thereafter issue an order directing compliance.

**§ 13.73 Notice of proposed order of compliance.**

A compliance order proceeding commences when the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned sends the alleged violator a notice of proposed order of compliance advising the alleged violator of the charges and setting forth the remedial action sought in the form of a proposed order of compliance.

**§ 13.75 Reply or request for hearing.**

(a) Within 30 days after service upon the alleged violator of a notice of proposed order of compliance, the alleged violator may—

- (1) File a reply in writing with the official who issued the notice; or
- (2) Request a hearing in accordance with Subpart D of this part.

(b) If a reply is filed, as to any charges not dismissed or not subject to a consent order of compliance, the alleged violator may, within 10 days after receipt of notice that the remaining charges are not dismissed, request a hearing in accordance with Subpart D of this part.

(c) Failure of the alleged violator to file a reply or request a hearing within the period provided in paragraph (a) or (b) of this section—

- (1) Constitutes a waiver of the right to a hearing and the right to an appeal, and
- (2) Authorizes the official who issued the notice to find the facts to be as alleged in the notice and to issue an appropriate order directing compliance, without further notice or proceedings.

**§ 13.77 Consent order of compliance.**

(a) At any time before the issuance of an order of compliance, the official who issued the notice and the alleged violator may agree to dispose of the case by the issuance of a consent order of compliance by the official.

(b) A proposal for a consent order submitted to the official who issued the notice under this section must include—

- (1) A proposed order of compliance;
- (2) An admission of all jurisdictional facts;
- (3) An express waiver of right to further procedural steps and of all rights to judicial review;
- (4) An incorporation by reference of the notice and an acknowledgement that the notice may be used to construe the terms of the order of compliance; and
- (5) If the issuance of a consent order has been agreed upon after the filing of a request for hearing in accordance with Subpart D of this part, the proposal for a consent order shall include a request to be filed with the Hearing Officer withdrawing the request for a hearing and requesting that the case be dismissed.

**§ 13.79 Hearing.**

If an alleged violator requests a hearing in accordance with § 13.75, the procedure of Subpart D of this part applies. At the close of the hearing, the Hearing Officer, on the record or subsequently in writing, sets forth the Hearing Officer's findings and conclusion and the reasons therefor, and either—

- (a) Dismisses the notice of proposed order of compliance; or
- (b) Issues an order of compliance.

**§ 13.81 Order of immediate compliance.**

(a) Notwithstanding §§ 13.73 through 13.79, the Chief Counsel, the Assistant Chief Counsel for Regulations and Enforcement, or the Regional Counsel concerned may issue an order of immediate compliance, which is effective upon issuance, if the person who issues the order finds that—

- (1) There is strong probability that a violation is occurring or is about to occur;

- (2) The violation poses a substantial risk to health or to safety of life or property; and

- (3) The public interest requires the avoidance or amelioration of that risk through immediate compliance and waiver of the procedures afforded under §§ 13.73 through 13.79.

(b) An order of immediate compliance is served promptly upon the person against whom the order is issued by telephone or telegram, and a written statement of the relevant facts and the legal basis for the order, including the findings required by paragraph (a) of this section, is served promptly by personal service or by mail.

(c) The official who issued the order of immediate compliance may rescind or suspend the order if it appears that the criteria set forth in paragraph (a) of this section are no longer satisfied, and, when appropriate, may issue a notice of proposed order of compliance under § 13.73 in lieu thereof.

(d) If at any time in the course of a proceeding commenced in accordance with § 13.73 the criteria set forth in paragraph (a) of this section are satisfied, the official who issued the notice may issue an order of immediate compliance, even if the period for filing a reply or requesting a hearing specified in § 13.75 has not expired.

(e) Within three days after receipt of service of an order of immediate compliance, the alleged violator may request a hearing in accordance with Subpart D of this part and the procedure in that subpart will apply except that—

- (1) The case will be heard within fifteen days after the date of the order of immediate compliance unless the alleged violator requests a later date;

- (2) The order will serve as the complaint; and

- (3) The Hearing Officer shall issue his decision and order dismissing, reversing, modifying, or affirming the order of immediate compliance on the record at the close of the hearing.

(f) The filing of a request for hearing in accordance with paragraph (e) of this

section does not stay the effectiveness of an order of immediate compliance.

(g) At any time after an order of immediate compliance has become effective, the official who issued the order may request the United States Attorney General, or the delegate of the Attorney General, to bring an action for appropriate relief in accordance with § 13.25.

**§ 13.83 Appeal.**

(a) Any party to the hearing may appeal from the order of the Hearing Officer by filing a notice of appeal with the Administrator within 20 days after the date of issuance of the order.

(b) Any person against whom an order of immediate compliance has been issued in accordance with § 13.81 or the official who issued the order of immediate compliance may appeal from the order of the Hearing Officer by filing a notice of appeal with the Administrator within three days after the date of issuance of the order by the Hearing Officer.

(c) Unless the Administrator expressly so provides, the filing of a notice of appeal does not stay the effectiveness of an order of immediate compliance.

(d) If a notice of appeal is not filed from the order of compliance issued by a Hearing Officer, such order is the final agency order of compliance.

(e) Any person filing an appeal authorized by paragraph (a) of this section shall file an appeal brief with the Administrator within 40 days after the date of the issuance of the order, and serve a copy on the other party. Any reply brief must be filed within 20 days after service of the appeal brief. A copy of the reply brief must be served on the appellant.

(f) Any person filing an appeal authorized by paragraph (b) of this section shall file an appeal brief with the Administrator with the notice of appeal and serve a copy on the other party. Any reply brief must be filed within 3 days after receipt of the appeal brief. A copy of the reply brief must be served on the appellant.

(g) On appeal the Administrator reviews the available record of the proceeding, and issues an order dismissing, reversing, modifying or affirming the order of compliance or the order of immediate compliance. The Administrator's order includes the reasons for the action.

(h) In cases involving an order of immediate compliance, the Administrator's order on appeal is issued within ten days after the filing of the notice of appeal.

**§ 13.85 Filing, service and computation of time.**

Filing and service of documents under this subpart shall be accomplished in accordance with § 13.43 except service of orders of immediate compliance under § 13.81(b); and the periods of time specified in this subpart shall be computed in accordance with § 13.44.

**§ 13.87 Extension of time.**

(a) The official who issued the notice of proposed order of compliance, for good cause shown, may grant an extension of time to file any document specified in this subpart, except documents to be filed with the Administrator.

(b) Extensions of time to file documents with the Administrator may be granted by the Administrator upon written request, served upon all parties, and for good cause shown.

**Subpart F—Formal Fact-Finding Investigation Under an Order of Investigation.**

**§ 13.101 Applicability.**

(a) This subpart applies to fact-finding investigations in which an order of investigation has been issued under § 13.3(c) or § 13.5(i) of this part.

(b) This subpart does not limit the authority of duly designated persons to issue subpoenas, administer oaths, examine witnesses and receive evidence in any informal investigation as provided for in sections 313 and 1004(a) of the Federal Aviation Act (49 U.S.C. 1354 and 1484(a)) and section 109(a) of the Hazardous Materials Transportation Act (49 U.S.C. 1808(a)).

**§ 13.103 Order of investigation.**

The order of investigation—

- (a) Defines the scope of the investigation by describing the information sought in terms of its subject matter or its relevancy to specified FAA functions;

- (b) Sets forth the form of the investigation which may be either by individual deposition or investigative proceeding or both; and

- (c) Names the official who is authorized to conduct the investigation and serve as the Presiding Officer.

**§ 13.105 Notification.**

Any person under investigation and any person required to testify and produce documentary or physical evidence during the investigation will be advised of the purpose of the investigation, and of the place where the investigative proceeding or deposition will be convened. This may be accomplished by a notice of investigation or by a subpoena. A copy

of the order of investigation may be sent to such persons, when appropriate.

**§ 13.107 Designation of additional parties.**

(a) The Presiding Officer may designate additional persons as parties to the investigation, if in the discretion of the Presiding Officer, it will aid in the conduct of the investigation.

(b) The Presiding Officer may designate any person as a party to the investigation if that person—

(1) Petitions the Presiding Officer to participate as a party; and

(2) Is so situated that the disposition of the investigation may as a practical matter impair the ability to protect that person's interest unless allowed to participate as a party; and

(3) Is not adequately represented by existing parties.

**§ 13.109 Convening the investigation.**

The investigation shall be conducted at such place or places designated by the Presiding Officer, and as convenient to the parties involved as expeditious and efficient handling of the investigation permits.

**§ 13.111 Subpoenas.**

(a) Upon motion of the Presiding Officer, or upon the request of a party to the investigation, the Presiding Officer may issue a subpoena directing any person to appear at a designated time and place to testify or to produce documentary or physical evidence relating to any matter under investigation.

(b) Subpoenas shall be served by personal service, or upon an agent designated in writing for the purpose, or by registered or certified mail addressed to such person or agent. Whenever service is made by registered or certified mail, the date of mailing shall be considered as the time when service is made.

(c) Subpoenas shall extend in jurisdiction throughout the United States or any territory or possession thereof.

**§ 13.113 Noncompliance with the investigative process.**

If any person fails to comply with the provisions of this subpart or with any subpoena or order issued by the Presiding Officer or the designee of the Presiding Officer, judicial enforcement may be initiated against that person under applicable statutes.

**§ 13.115 Public proceedings.**

(a) All investigative proceedings and depositions shall be public unless the Presiding Officer determines that the public interest requires otherwise.

(b) The Presiding Officer may order information contained in any report or

document filed or in any testimony given pursuant to this subpart withheld from public disclosure when, in the judgment of the Presiding Officer, disclosure would adversely affect the interests of any person and is not required in the public interest or is not otherwise required by statute to be made available to the public. Any person may make written objection to the public disclosure of such information, stating the grounds for such objection.

**§ 13.117 Conduct of investigative proceeding or deposition.**

(a) The Presiding Officer or the designee of the Presiding Officer may question witnesses.

(b) Any witness may be accompanied by counsel.

(c) Any party may be accompanied by counsel and either the party or counsel may—

(1) Question witnesses, provided the questions are relevant and material to the matters under investigation and would not unduly impede the progress of the investigation; and

(2) Make objections on the record and argue the basis for such objections.

(d) Copies of all notices or written communications sent to a party or witness shall upon request be sent to that person's attorney of record.

**§ 13.119 Rights of persons against self-incrimination.**

(a) Whenever a person refuses, on the basis of a privilege against self-incrimination, to testify or provide other information during the course of any investigation conducted under this subpart, the Presiding Officer may, with the approval of the Attorney General of the United States, issue an order requiring the person to give testimony or provide other information. However, no testimony or other information so compelled (or any information directly or indirectly derived from such testimony or other information) may be used against the person in any criminal case, except in a prosecution for perjury, giving a false statement, or otherwise failing to comply with the order.

(b) The Presiding Officer may issue an order under this section if—

(1) The testimony or other information from the witness may be necessary to the public interest; and

(2) The witness has refused or is likely to refuse to testify or provide other information on the basis of a privilege against self-incrimination.

(c) Immunity provided by this section will not become effective until the person has refused to testify or provide other information on the basis of a

privilege against self-incrimination, and an order under this section has been issued. An order, however, may be issued prospectively to become effective in the event of a claim of the privilege.

**§ 13.121 Witness fees.**

All witnesses appearing shall be compensated at the same rate as a witness appearing before a United States District Court.

**§ 13.123 Submission by party to the investigation.**

(a) During an investigation conducted under this subpart, a party may submit to the Presiding Officer—

(1) A list of witnesses to be called, specifying the subject matter of the expected testimony of each witness, and

(2) A list of exhibits to be considered for inclusion in the record.

(b) If the Presiding Officer determines that the testimony of a witness or the receipt of an exhibit in accordance with paragraph (a) of this section will be relevant, competent and material to the investigation, the Presiding Officer may subpoena the witness or use the exhibit during the investigation.

**§ 13.125 Depositions.**

Depositions for investigative purposes may be taken at the discretion of the Presiding Officer with reasonable notice to the party under investigation. Such depositions shall be taken before the Presiding Officer or other person authorized to administer oaths and designated by the Presiding Officer. The testimony shall be reduced to writing by the person taking the deposition, or under the direction of that person, and where possible shall then be subscribed by the deponent. Any person may be compelled to appear and testify and to produce physical and documentary evidence.

**§ 13.127 Reports, decisions and orders.**

The Presiding Officer shall issue a written report based on the record developed during the formal investigation, including a summary of principal conclusions. A summary of principal conclusions shall be prepared by the official who issued the order of investigation in every case which results in no action, or no action as to a particular party to the investigation. All such reports shall be furnished to the parties to the investigation and filed in the public docket. Insertion of the report in the Public Docket shall constitute "entering of record" and publication as prescribed by section 313(b) of the Federal Aviation Act.

**§ 13.129 Post-investigation action.**

A decision on whether to initiate subsequent action shall be made on the basis of the record developed during the formal investigation and any other information in the possession of the Administrator.

**§ 13.131 Other procedures.**

Any question concerning the scope or conduct of a formal investigation not covered in this subpart may be ruled on by the Presiding Officer on motion of the Presiding Officer, or on the motion of a party or a person testifying or producing evidence.

**Note.**—The FAA has determined that this document involves an amendment which is not considered to be significant under the procedures and criteria prescribed by Executive Order 12044 and is implemented by the Department of Transportation Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, the Federal Aviation Administration has determined that the expected impact of it is so minimal that it does not require an evaluation.

Issued in Washington, D.C., on October 26, 1979.

Langhorne Bond  
Administrator.

[FR Doc. 79-33988 Filed 11-2-79; 8:45 am]

BILLING CODE 4910-13-M



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Monday  
November 5, 1979

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**Part V**

**Department of the  
Interior**

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**Office of Surface Mining**

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**Abandoned Mine Lands Reclamation  
Program; Availability of Draft  
Environmental Impact Statement**





## DEPARTMENT OF THE INTERIOR

## Office of Surface Mining

## 30 CFR Parts 870 Through 888

[INT DES 79-58]

**Abandoned Mine Lands Reclamation Program; Availability of Draft Environmental Impact Statement**

**AGENCY:** Office of Surface Mining Reclamation and Enforcement (OSM), U.S. Department of the Interior.

**ACTION:** Notice of availability of the draft environmental impact statement (DES) addressing implementation of program policies for abandoned mine lands reclamation.

**SUMMARY:** OSM has prepared a DES addressing implementation of program policies for abandoned mine land (AML) reclamation under Title IV of the Surface Mining Control and Reclamation Act of 1977 (SMCRA), 30 U.S.C. 1201 et seq. OSM published final rules on October 25, 1978, (43 FR 49932) which established the abandoned mine land reclamation program and procedures for administering Title IV of SMCRA (30 CFR Parts 870-888). Copies of the DES are being made available today. Public comment on the DES is solicited and public hearings will be held as described below.

**DATES:** All comments on the DES must be received at the address given below under "Address" on or before December 24, 1979, at 5 p.m. Comments may also be presented at public hearings scheduled as itemized below.

**ADDRESSES:** Written comments on the DES must be mailed or hand delivered to: Office of Surface Mining, Room 135, South Building, U.S. Department of the Interior, 1951 Constitution Avenue, N.W., Washington, D.C. 20240, weekdays between 8:30 a.m. and 5:00 p.m. All comments will be on file and available for inspection at the same address. Public hearings will be held at the addresses listed below.

**FOR FURTHER INFORMATION CONTACT:** James D. Evans, Chairman, EIS Task Force, Office of Surface Mining, U.S. Department of the Interior, Washington, D.C. 20240, 202-343-4057.

**SUPPLEMENTARY INFORMATION:** Pursuant to the National Environmental Policy Act of 1969 and Title IV of SMCRA, OSM, has prepared a draft environmental impact statement (DES). The DES addresses alternatives for two elements of the abandoned mine lands program as follows:

*A. Federal Discretionary Fund Allocation*

- (1) No action.
- (2) Allocation of funds based on share of national fee collection.
- (3) Allocation of funds based on share of national historical production.
- (4) Allocation of funds based on share of national problems, or
- (5) Allocation of funds based on a composite approach.

*B. Abandoned Mine Lands Reclamation Guidelines*

- (1) No reclamation guidelines.
- (2) Goal-oriented reclamation guidelines.
- (3) Detailed reclamation guidelines.

**DES Availability**

Copies of the DES are available for inspection and may be obtained at any of the OSM offices listed below.

Office of Surface Mining, Administrative Record, Room 135, South Building, U.S. Department of the Interior, 1951 Constitution Avenue, N.W., Washington, D.C. 20240.

Office of Surface Mining—Region I, U.S. Department of the Interior, 1st Floor, Thomas Hill Building, 950 Kanawha Boulevard East, Charleston, West Virginia 25301.

Office of Surface Mining—Region II, U.S. Department of the Interior, 530 Gay Street, Suite 500, Knoxville, Tennessee 37902.

Office of Surface Mining—Region III, U.S. Department of the Interior, Federal Building and Court House, 45 East Ohio Street, Room 520, Indianapolis, Indiana 46204.

Office of Surface Mining—Region IV, U.S. Department of the Interior, 818 Grand Avenue, Kansas City, Missouri 64106.

Office of Surface Mining—Region V, U.S. Department of the Interior, Post Office Building, Room 270, 1832 Stout Street, Denver, Colorado 80202.

**Public Hearings**

Public hearings on the DES will be held at the following locations and on the dates noted:

Austin, Texas—Marriott Hotel, 6121 Interstate Highway 35 North, November 28, at 10:00 a.m.

Alcoa, Tennessee—Holiday Inn Airport, Alcoa Highway (Highway 129), November 28 at 10:00 a.m.

Indianapolis, Indiana—Indiana War Memorial, Southeast Meeting Room, 431 North Meridian Street, November 27 at 10:00 a.m.

Denver, Colorado—U.S. Post Office Building, Room 269, 1823 Stout Street, November 28 at 10:30 a.m.

Charleston, West Virginia—Charleston National Bank Plaza Auditorium, Room 7-1 (Lower level), Corner, Virginia and Capitol Streets, November 24 at 1:00 p.m.

Those persons wishing to speak at any of the public hearings may be scheduled on the programs in advance by telephoning Jim Evans in Washington, D.C., at 202-343-8083. Individual testimony at these hearings will be limited to 15 minutes.

The hearings will be transcribed. Filing of a written statement at the time of giving oral testimony will be helpful and will facilitate the job of the court reporter. The public hearings will commence at the times identified above and will continue until all persons scheduled to speak have been heard. Persons in the audience who have not been scheduled to speak and who wish to do so will be heard at the end of the scheduled speakers. Persons not scheduled to testify, but wishing to do so, assume the risk of having the public hearing adjourned on any given day unless they are present in the audience at the time all scheduled speakers have been heard.

OSM encourages the public to comment on the scope and content of the DES. In particular, OSM solicits comments which identify errors, omissions, or alternatives not yet considered. Whenever possible, public comments should be supported by technical data or other source material. All comments from the public on the DES will be considered and responses to timely comments will be prepared for inclusion in the final environmental impact statement.

Dated: October 30, 1979.

Larry E. Meierotto,

*Assistant Secretary of the Interior.*

[FR Doc. 79-34976 Filed 11-2-79; 8:45 am]

BILLING CODE 4310-05-M



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Monday  
November 5, 1979

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**Part VI**

**Department of  
Energy**

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**Economic Regulatory Administration**

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**Powerplant and Industrial Fuel Use Act  
of 1978; Availability of Revised  
Guidelines for Preparation of  
Environmental Reports**

**DEPARTMENT OF ENERGY****Economic Regulatory Administration****Powerplant and Industrial Fuel Use Act of 1978; Availability of Revised Guidelines for Preparation of Environmental Reports**

**AGENCY:** Economic Regulatory Administration, Department of Energy.

**ACTION:** Notice of Availability of Final Guidelines for Preparation of Environmental Reports.

**SUMMARY:** The Economic Regulatory Administration (ERA) of the Department of Energy (DOE) announces the availability of final guidelines for preparation of environmental reports. These guidelines contain modifications to the proposed guidelines published on January 31, 1979 (44 FR 6177). They have been revised to respond to comments received on the January 31, 1979, guidelines and to correspond more closely with the requirements of the Interim Rule for Criteria for Petition for Exemption from Prohibitions (44 FR 28950, May 17, 1979). The guidelines are to be followed by petitioners who, pursuant to the Fuel Use Act (FUA), are filing petitions for permanent exemptions for powerplants and major fuel burning installations. The environmental reports (ERs) to be prepared by the petitioner in compliance with these revised guidelines will comprise the Environmental Impact Analysis Chapter of the Fuels Decision Report (FDR). Environmental Reports are to be submitted for all appropriate exemption petitions not expressly excluded by the Fuel Use Act (FUA) from compliance with the National Environmental Policy Act of 1969 (NEPA). These guidelines are referred to in § 502.13 of 44 FR 28950, which discusses the requirements for the Environmental Impact Analysis Chapter and briefly outlines general information which the chapter should contain.

In the majority of cases, these guidelines will be used in submitting petitions for permanent exemptions from the statutory prohibitions applicable to new facilities, as prescribed in Title II of the Act, since the greatest application of the guidelines will be in the area of new facilities, they have been structured to apply to the construction of new facilities and to the expansion or renovation of existing facilities through the construction or modification of units which are within the jurisdiction of Title II. However, there are three cases when the guidelines should also be used in

submitting petitions for exemptions for existing facilities. For these cases, the guidelines should be interpreted and applied, as appropriate, to fit the conditions and circumstances of the existing facility. The first case is represented by exemptions requested for existing powerplants which are prohibited from use of natural gas under Title III of the Act. The second case is represented by exemptions requested for specific categories of new and existing facilities which may be prohibited by rule from use of natural gas or petroleum under both Title II and Title III of the Act. Owners of individual facilities affected by such rules should follow these guidelines as appropriate in petitioning for exemptions from the prohibitions established by the rules.

The third case is represented by those proposed prohibition order recipients who elect to submit environmental analyses when commenting on the proposed orders issued under Title III. Under the interim rule governing existing facilities published on July 23, 1979, (44 FR 43176), no submission from the recipient of a proposed prohibition order will be required at any time before the order becomes effective. During that period, ERA will have proposed that an order be issued for an existing facility and will have subsequently published a Tentative Staff Decision for the facility (Section 501.51). Since ERA will have already performed a NEPA review in conjunction with the Tentative Staff Decision, it would no longer be appropriate to require that an environmental analysis be submitted by the recipient. However, if a recipient of a prohibition order desires to submit an environmental analysis of the conversion as part of his comment on the proposed prohibition order, he is encouraged to use these guidelines in preparing the analysis.

The ERs should provide ERA with information that will assist ERA in complying with the requirements of NEPA. When weighing the environmental consequences of ERA's decision on an applicant's exemption petition, ERA must develop information in recognition of the fact that the "Federal action" involved will constitute either the granting or the denial of the exemption. The ER must therefore contain sufficient information to support either decision. In the event that the exemption is denied, the petition must contain sufficient information to allow ERA to adequately assess the environmental consequences of the denial. This will require that the petitioner analyze the environmental effects of the alternative actions which

might reasonably be projected if the petition were denied. The alternative actions could range from a decision not to build or expand the facility, to the use of reasonable alternate fuels in the operation of the facility. The guidelines have been revised to clarify these requirements for thorough analysis.

Subsequent to publication of the January 31 proposed guidelines, ERA received a number of written comments which were considered and responded to in the preparation of the final guidelines. The comments received most frequently were: (1) That excessive amounts of environmental data were being requested; and (2) that the guidelines format did not conform with the Council on Environmental Quality's (CEQ) Final Regulation for Implementation of Procedural Provisions of the National Environmental Policy Act (43 FR 55978). The final guidelines have been revised to demonstrate ERA's express intent to avoid the collection of unnecessary environmental data and to ensure that ERs follow the CEQ Final Regulations as adopted by DOE at 10 CFR Part 1021, and the DOE Implementing Guidelines, (as proposed July 18, 1979, 44 FR 42136).

In the ER, the petitioner should scope the impacts of the proposed action, as well as all reasonable alternatives to the proposed action, and the environmental consequences of those impacts. The petitioner's ER should address those specific issues which directly relate to the proposal in a depth appropriate to the importance of the impact and in as succinct a manner as possible. ERA does not intend that the petitioner collect irrelevant data or prepare an encyclopedic treatment of the subject matter, but, rather, intends that the petitioner take responsibility for presenting those facts which are necessary for preparation of an objective evaluation of the environmental consequences of the proposal and its alternatives.

**FOR FURTHER INFORMATION CONTACT:**

Steven E. Ferguson, Chief, Environmental Analysis Branch, Office of Fuels Conversion, Room 3322-D, 2000 M Street, N.W., Washington, D.C. 20461 (202) 634-6523.

Janine Landow-Esser, Attorney, OGC, Room 6G-087, Forrestal Building, Washington, D.C. 20585 (202) 252-6947.

Robert Stern, Div. of NEPA Affairs/Environment, Room 4G-084, Forrestal Building, Washington, D.C. 20585 (202) 252-4600.

Dated: October 26, 1979.

Robert L. Davies,

*Acting Assistant Administrator, Office of  
Fuels Conversion, Economic Regulatory  
Administration.*

### Introduction

These guidelines prescribe the organization and content of the environmental report (ER) to be submitted with petitions for permanent exemptions for new powerplants and major fuel burning installations in accordance with the provisions of both the Fuel Use Act and National Environmental Policy Act (NEPA). The ER will comprise the Environmental Impact Analysis Chapter of the Fuels Decision Report (FDR) and will assist ERA in fulfilling its responsibilities under NEPA. Information contained in the ER will form the basis for the initial ERA environmental review which will determine the type of NEPA document which ERA will prepare.

The analysis and information contained in the ER should adequately treat all reasonable alternatives so that the subsequent ERA NEPA document is sufficient to support a decision either to grant or to deny an exemption. It is anticipated that during prepetition conferences with ERA, a wide range of potential alternative fuel scenarios will be discussed. As a result of such discussions, a group of reasonable alternative fuel scenarios, including various fuel mixtures, will be selected for full treatment in the FDR. The environmental impact of these alternative fuels will be analyzed in Chapter III B of the ER. Environmental analysis will not be required for alternative fuels that ERA has determined need not be covered in the FDR. However, the petitioner will be required to analyze the "no-build" option, since in the event that petition for exemption were denied, the petitioner might reasonably be expected to elect this option. The petitioner's analysis of the "no-build" option should include a description of the reasonable scenarios of what would occur if a corporate decision were made not to build, and a characterization of the environmental impacts that would result from this decision. For example, the petitioner should assess the environmental ramifications of the continued operation of older, less efficient units if this is the likely outcome of a denial of an exemption petition for a new replacement unit. In summary, ERA expects petitioners to conduct those appropriate environmental impact analyses which are necessary to determine the impact of the proposal and agreed upon

alternatives, including the "no-build" option.

In preparing the ER, the petitioners should closely follow the format provided in the Council on Environmental Quality's (CEQ) Final Regulations of November 29, 1978 (43 FR 55978), as adopted by DOE at 10 CFR Part 1021, the Department of Energy's NEPA guidelines (44 FR 42136), and the format outlined in these final ER guidelines. These ER guidelines are not intended for use as checklists, but as general guidance to be applied to the preparation of detailed ER's for specific facilities. It is intended that each petitioner thoroughly understand and assess the total proposal for his specific facility, the environmental systems which might be affected by that proposal, and the impact which the proposal would have on those systems. In analyzing the proposed action, the petitioner should perform an assessment of only those issues which directly relate to the impact of the proposal and its alternatives. The assessments should be of a detail commensurate with the importance of the impacts, and should be analytic rather than encyclopedic. If the applicant determines that a particular environmental resource will not be impacted by the proposed action, he should state this determination with a brief explanation of why there will be no impact. The petitioner should consult with appropriate Federal, regional, state, and local entities during the preparation of the environmental report to determine those laws and statutes which govern the applicant's actions.

Any information which is required for the ER but which has been included in other parts of the FDR, FUA exemption forms, or documents prepared for other purposes may be incorporated by reference. To incorporate this information, the petitioner must cite the specific page of the FDR; the name, date, page and section number of the FUA exemption form; or the title, date, and page of the document. The petitioner may not incorporate material by reference unless a copy of that material is submitted in conjunction with the petition.

These guidelines apply both to the construction and operation of totally new facilities and to the expansion or renovation of existing facilities. The petitioner must determine the significant area of concern for each category of potential impact (e.g., air, water, land use) and analyze those areas in suitable detail. Throughout these guidelines, the term "facility" has been used to mean either "facility" or "unit" as appropriate to the area of analysis involved.

In preparing these guidelines, ERA has used the future tense to address proposed actions, with the intention that the guidelines apply equally to existing facilities which are being expanded, modified or renovated. Also, when referring to a facility, the singular form is intended to include the plural when multiple units are involved.

### Table of Contents

- I. Description of the Facility
  - A. Site Location and Surroundings
    - 1. Name and location of the facility
    - 2. Description of the facility
  - B. Operations
    - 1. Description of the facility's current and proposed operations
    - 2. Fuel capability
    - 3. Pollution abatement systems and equipment
      - a. Air
      - b. Water
      - c. Solid waste
  - II. Description of the Existing Environment
    - A. Air Resources
      - 1. Ambient conditions and applicable air pollution standards and classification
      - 2. Climate
    - B. Water Resources
      - 1. General Description
      - 2. Applicable water pollution standards and classifications
    - 3. Aquatic ecology
    - 4. Groundwater
    - C. Land Resources
      - 1. Topography, physiography, and geology
      - 2. Terrestrial ecology
      - 3. Current land use
      - 4. Transportation
      - 5. Noise
      - 6. Historic and archeological resources
    - 7. Socioeconomics
    - III. Environmental Impacts of the Proposal and Alternatives, Including Alternate Fuel Scenarios
      - A. Impact of Proposed Action Including Proposed Fuel Scenario
        - 1. Air Resources
          - a. Air quality impacts
        - 2. Water Resources
          - a. Surface water
          - b. Aquatic ecology
        - c. Groundwater
        - 3. Land Resources
          - a. Construction impacts
          - b. Local Land Use
          - c. Transportation
          - d. Solid waste disposal
          - e. Terrestrial ecology
          - f. Historical and archeological resources
        - g. Socio-economics
        - h. Noise
        - B. Summary of Impacts
        - C. Impacts of No-Build Alternative
      - IV. Regulatory Requirements Governing the Facility
      - V. Bibliography
      - VI. Appendices

### I. Description of the Facility

#### A. Site Location and Surroundings

##### 1. Name and Location of the Facility

Name the applicant and the location of the facility. Specify the location in terms of

proximity to the nearest towns and the major cities of the county and state. Provide a map showing the location of the facility and the roads, railroad facilities, or bodies of water which give access to it.

## 2. Description of the Facility

(1) Outline the various facility components to be constructed. (2) Identify the total amount of land the facility will occupy. (3) Indicate the modes of transportation that will serve the site and describe the current condition of the transportation facilities. (4) Include a schematic diagram of the facility configuration.

## B. Operations

### 1. Description of the Facility's Current and Proposed Operations

State the age, design specifications, and operating capacities for the unit(s) for which the exemption petition is being filed. For both utilities and major fuel burning installations (MFBIs), reference the page of the Fuels Decision Report (FDR) or appropriate FUA exemption form which gives the design data for each unit.

For utilities, specify whether each unit is a peak, intermediate, or baseload unit. For MFBIs, briefly describe what products will be manufactured. Cite the dates for planned retirement of any existing units.

### 2. Fuel Capacity

Discuss any fuels which may have been used in the past as primary fuel sources at this installation. List the proposed and alternate fuels which are under consideration for use at the facility and which are assessed individually in Section III of these guidelines. Reference the page of the FDR or appropriate form on which these fuels are discussed.

Indicate the number of days of fuel supply which will be stored on site, where the fuel will be stored, and the amount of land required for storage. Specify the types of fuel handling equipment which the facility has or plans to acquire.

### 3. Pollution Abatement Systems and Equipment

a. *Air*.—For facility expansions, describe any air pollution control equipment currently in place, i.e., electrostatic precipitators, baghouses, and/or scrubbers. Name the manufacturer, the size, design, and operational efficiency for each piece of equipment. State when the equipment was installed, whether it is currently being used, and the equipment's projected useful life time for achieving compliance with existing regulations. Provide a record of "down time," for both control equipment and monitoring equipment and indicate the location of the monitoring equipment in relation to the stacks. Describe the installed equipment or operational procedures used to control the emission of nitrogen oxides. If the facility has not yet been constructed, describe the air pollution control equipment that will be installed.

b. *Water*.—Describe waste water pollution control systems proposed for the facility, as well as any pretreatment and treatment methods for water used by the facility. Indicate whether the cooling water system and other powerplant or boiler processes operate on a once-through system or a recirculating system. Specify how liquid wastes from the various process areas are treated. Describe the volume, condition, and discharge procedure for waste effluents. A schematic diagram may be included for brevity.

c. *Solid waste*.—State the type and quantity of solid wastes which will be generated at the facility and describe how the waste will be handled. Name the location of solid waste storage and disposal facilities. Describe the type of soil at the proposed disposal site and state the site's distance and relationship to nearby surface water or underground aquifers. Discuss types or methods of lining or otherwise protecting the disposal site to prevent waste products from contaminating surface water or aquifers. If the waste disposal area is not within the confines of the facility site, state the distance and methods by which solid wastes will be transported, and the distances.

## II. Description of the Existing Environment

Provide an overall description of existing environmental factors or resources which might be affected directly or indirectly by the facility's construction or operation, or which might affect that facility's construction or operation. Examples of pertinent environmental categories for consideration are listed below. All categories may not be relevant to each specific facility, and some facilities may require a substantially broader treatment for certain categories than for others. It will be incumbent upon the applicant to determine the particular areas of environmental impact for his specific facility and to develop this section appropriately.

### A. Air Resources

#### 1. Ambient Conditions and Applicable Air Pollution Standards and Classification

In terms of applicable Federal, state, and local standards and regulations, describe the ambient air quality within the facility's Air Quality Control Region (AQCR), and specifically within a 50-kilometer radius of the facility. For each criteria pollutant, indicate whether the AQCR or other areas likely to be affected by emissions from the facility are "attainment" or "non-attainment" areas. Give the location of the EPA or state monitoring stations which would monitor the facility. Cite those State Implementation Plan (SIP) regulations which are applicable to the facility. Indicate the EPA Prevention of Significant Deterioration (PSD) classifications (Class I, II, or III) and applicable state requirements for each criteria pollutant in the facility's AQCR and for those adjacent areas which are likely to be affected by facility emissions. Provide a summary of all relevant data which indicates the extent to which the National Ambient Air Quality Standards are

being violated, or PSD increments have been consumed, in the area likely to be affected by emissions from the facility.

### 2. Climate

Give a brief description of the existing climate. Discuss terrain features which influence local climate. Specify the temperature range in winter and summer, the annual mean temperature and the season that receives the most precipitation. State the monthly average precipitation, the periods of peak and minimum rainfall, and the average humidity. Give predominant wind characteristics, including wind directions and frequencies, and annual wind speed range. Include a wind rose diagram. Indicate incidence of storms, such as tornadoes and hurricanes, and frequency and duration of temperature inversions, stagnations, fog, smog or icing. Specify the source of information and cite the location of monitoring stations.

## B. Water Resources

### 1. General Descriptions

Describe the predominant water bodies in the facility area and their location relative to the plant. Describe any increased use of these water sources which would result from the proposed operation of the facility. If the facility proposes to withdraw water from a source, indicate the amount of water withdrawn or consumed in million gallons per day (MGD) and acre-feet per year. If the facility discharges or will discharge an effluent into a water body, indicate the volume discharged in MGD. Describe the receiving water body's average volume and flow in cubic feet per second (cfs), the minimum and peak flow rates, and the water body into which the receiving water flows. Indicate other current uses of each water body for recreation, public water supply, industrial use, etc. If the water source proposed for use in facility operation is also used by other industrial facilities, list those facilities and give their locations relative to the site.

### 2. Applicable Water Pollution Standards and Classifications

Indicate the EPA and state classification for the bodies of water which are serving as intake and discharge, i.e., water quality limited, effluent limited or other limitations. Describe applicable water pollution control regulations. State whether the facility would be located in a designated floodplain or wetland. (Consult 10 CFR Part 1022 for floodplain/wetland identification guidance). Indicate whether there are any federally designated or proposed Wild, Scenic or Recreation rivers in the facility area.

Give the location and numbers of the nearest EPA/state water quality reading stations above and below the proposed facility. Applicants for existing facilities should include a chart which shows the

allowable effluent discharge limitations according to any currently effective NPDES permit and give readings from the state or Federal monitors for each parameter over the past five years, or the life of the facility, whichever is shorter. Indicate the current ambient concentrations, as registered by the monitoring stations, of those constituents which EPA has designated as indicators of water quality. Note any violations of local, state, or Federal water quality standards which are or may be caused by the facility.

### 3. Aquatic Ecology

Describe the aquatic ecology of any water bodies which will be impacted by the facility. For each major water body, identify the most prevalent aquatic flora and fauna species which are essential constituents of the existing ecosystem.

Identify and threatened or endangered species (see 50 CFR Part 17) and species of particular commercial or sport value which are found in the bodies of water affected by any part of the facility's operations.

### 4. Groundwater

Describe any significant aquifers at the facility or relevant off-site areas and state their depth and direction of flow. Identify the location of groundwater recharge areas at the facility and at relevant off-site areas. Describe current uses of these aquifers and indicate any usage restrictions which may have been placed on them by federal, state or local authorities (for instance, designation as sole source aquifers pursuant to the Safe Drinking Water Act).

### C. Land Resources

#### 1. Topography, Physiography, and Geology

Describe the topography and geology of this area. Provide a description of the topographic, physiographic, and geologic features within the facility site and surrounding area, as well as any relevant off-facility site.

If necessary, delineate the generalized regional stratigraphy for the area around the facility. Note any geologic faults near the facility area and describe their relative location and depth. State the probability of occurrence of incidents such as earthquakes, and earthslides, land subsidence, or erosion.

If appropriate, describe the soil at the site in terms of its physical characteristics, its degree of permeability, its stability, and its drainage characteristics. Note whether the U.S. Department of Agriculture has classified the soil type as prime or unique farmland, or rangeland.

#### 2. Terrestrial Ecology

Describe terrestrial ecology and discuss the major types of flora and fauna present at the facility site, all relevant off-facility sites, and in the surrounding areas. In discussing fauna, note important migrant and resident species and their habitats. Indicate any unique ecosystems or communities and identify any species which are listed by the U.S. Department of Interior as threatened or

endangered, or are of particular commercial or sport value. Describe the effects of construction and operation of the facility on these species.

### 3. Current land use

Describe current land uses at the facility site and relevant off-site areas, and indicate the existence of any specially designated Federal or state land areas. Discuss applicable zoning requirements for the county in which the facility and relevant off-site areas are located. Briefly describe whether the facility and other relevant sites are in an agricultural, residential or industrial corridor.

### 4. Transportation

List modes of transportation which will be used to bring fuel and other raw materials into the facility. Indicate the level of current usage of these transportation modes. Identify the roads which provide access to the facility, and cite the major highways nearby which connect the area in which the facility is located to other areas. If appropriate, describe the existing condition, utilization rate and capacity of the major roads. Name any railroads which serve the facility and indicate whether or not they are used under current or projected operations. If there are any docking facilities, describe what size vessels they accommodate, whether they are currently in use or projected for use by or for the facility and the frequency of use. Describe the level of current non-facility traffic on the relevant water bodies, roads, etc. Include discussion of transportation systems to any relevant off-site facility areas.

### 5. Noise

Describe the noise levels of the facility area in terms of EPA and state or local noise standards. If levels exceed EPA standards, or state or local regulations, specify what is being done to bring the facility into compliance.

### 6. Historic and archeological resources

Identify any historical, archeological, or scenic sites listed on the National Register of Historic Places and/or any other scenic or natural resources within a twenty-five mile radius of the facility.

### 7. Socioeconomics

Describe the socioeconomic characteristics of the facility area. Include a discussion of the basic employment patterns and income levels of the area. Describe existing community services such as police and fire protection, housing availability, school system, medical services, municipal water supply, and sewage disposal systems.

### III. Environmental Impacts of the Proposal and Alternatives, Including Alternate Fuel Scenarios

In the following sections discuss the environmental impact of the proposed action and of reasonable alternative actions, including the "no-build" option. The discussion of the various environmental issues should treat the impact of both facility

construction and operation including the cumulative impacts of the operation of the facility in combination with existing sources. The level of treatment of each projected environmental impact should be commensurate with the significance of that impact. If no significant impact is projected for a particular environmental resource, a brief justification for that conclusion should be stated.

#### A. Impacts of Proposed and Alternate Actions

This section should address the environmental impact of the proposed action, including use of the proposed fuel, and all reasonable alternatives to the proposed action, including those alternative fuel scenarios discussed in the Exemption chapter of the FDR. In addition, it should address those operating scenarios which are analyzed for purposes of comparison within the FDR. Alternative actions considered must also include the various pollution control technologies which could be implemented for both the proposed fuel and all alternative fuels.

#### 1. Air Resources

a. *Air quality impacts.*—For each alternative fuel discussed, prepare a table describing the predicted average and peak emission rates for each of the following pollutants: Total Suspended Particulates (TSP), Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide (CO) and Hydrocarbons (HC). Calculate emissions assuming compliance with applicable requirements, including New Source Performance Standards (NSPS), State Implementation Plan (SIP) and your estimate of what would constitute Best Available Control Technology (BACT) or Lowest Achievable Emission Rate, as appropriate. State all other relevant pollution control assumptions, including design and operational parameters, underlying each prediction.

Highlight any projected emissions which would cause violations of applicable Federal and state primary and secondary standards in the AQCR. If the facility is violating such a standard under current operations, indicate what will be done to bring the facility into compliance. Specify any additional violations of standards presently occurring in the AQCR in which the facility will be located and whether the applicant owns the other non-compliance sources. State the distance of the sources causing the violations, and what is being done to bring the sources into compliance.

In order to compare ground-level concentrations of criteria pollutants and the resulting effect on current ambient air quality, prepare the following chart for each fuel considered. State which model was used to calculate the concentrations, and whether the model is EPA-approved. If you were advised by EPA concerning the appropriate model to use, give the name, address and telephone number of the person who advised you.



## Predicted Maximum Ground Level Concentrations

Pollutant	Average period	Facility impact	Maximum impact distance (Km)	Direction from facility	Current background	Background plus facility impact
TSP	Annual					
	24-hour					
SO <sub>2</sub>	Annual					
	24-hour					
	3-hour					
NO <sub>x</sub>	Annual					
CO	8-hour					
	1-hour					
HC	3-hour					

In addition, all petitioners should identify the impacts of emissions on PSD and nonattainment areas within a fifty kilometer (Km), radius of the facility, or at a lesser distance if the concentration will be less than what is specified in the PSD regulations 40 CFR 51.24 (b)(19)(c); 43 FR 26380, 26384 (June 19, 1978). If, however, the facility's emissions will effect a Class I area, which is more than fifty Km from the facility, this impact must be considered (40 CFR 51.24(g)(3), 43 FR 26387).

## 2. Water Resources.

a. *Surface water.*—Petitions for expansion or renovation of existing facilities should describe the present National Pollution Discharge Elimination System (NPDES) permits and indicate what modifications would be necessary if the facility received or were denied an exemption from burning coal, or alternate fuels. Petitions for new facilities should indicate the status of the NPDES permit application and whether it would be affected by the use of any of the alternative fuels considered. Describe the water intake and discharge facilities and processes which would be necessary for operation, including any changes from existing operations and indicate the amount of water consumed and discharged.

Describe pretreatment and post-treatment of water. Using EPA-approved models,<sup>1</sup> prepare a summary chart on the projected change in ambient water quality caused by construction or operation under each fuel scenario. Discuss both existing and projected water quality. Comparisons should be made in terms of Federal, state and local water quality standards for appropriate EPA designated water quality indicator constituents. Indicate where potential violations may occur and describe accident prevention and control measures. If construction or operation of the facility will occur on a floodplain or in a wetland area, discuss all practicable alternatives to construction/operation in the floodplain or wetland; all mitigating measures available; and all necessary permits for such construction/operation. Discuss any impact to Wild, Scenic, or Recreation rivers.

b. *Aquatic ecology.*—For each fuel scenario, discuss the impact of construction and operation of the facility on aquatic ecology. Emphasis should be placed on unique habitats or feeding grounds. Evaluate the impacts of dredging and increased

sedimentation, or water quality deterioration on aquatic species and habitats. Specify particular species which may be affected. Identify any threatened or endangered species located in the aquatic environment, and note any impacts on them due to construction or operation under each fuel scenario. Provide documentation to substantiate the analyses.

c. *Groundwater.*—For each fuel scenario discuss any impact which construction and/or operation may have on groundwater resources. Discuss available mitigating measures.

## 3. Land Resources

a. *Construction impacts.*—Indicate required construction activities and land requirements for operation of the proposed action. Specifically, indicate how the land is used now and how many acres of land would be necessary for required additional facilities. Discuss any impact which construction/operation may have on the topography of the area. Discuss manner in which the construction/operation could be affected by geological activity.

b. *Local land use.*—Describe how operation and construction of the proposed facility system under each fuel scenario will affect the local land use patterns.

Identify effects on current land use of activities related to transport, processing, storage, and combustion of each fuel considered. Indicate whether the construction or operation would conflict with existing or proposed regional land use plans or regulations. If so, cite the plan or regulation and explain the conflict.

c. *Transportation.*—Note any changes in existing transportation requirements that would result from construction or operation under each fuel scenario. Indicate whether or not any projected increases would be beyond the capacity of the existing transportation system. In addition, consider and discuss any impacts which transportation of supplies of an alternate fuel might have upon existing transportation systems of surrounding communities (i.e. if supplies of coal were transported to a facility by truck over existing roads).

d. *Solid waste disposal.*—Specify the amount and type of solid waste which will be produced annually under each fuel scenario. Indicate location of (proposed) solid waste disposal sites, and state how the waste would be transported. If the solid waste is going to be disposed of on site describe how

it is going to be handled. Describe how the facility's solid waste disposal practices would comply with EPA and state solid waste regulations, including those promulgated pursuant to the Resource Conservation and Recovery Act of 1970 and the Safe Drinking Water Act. Indicate what, if any impacts solid waste disposal may have on groundwater resources. If appropriate, reference preceding section III. A. 2c for details on groundwater.

e. *Terrestrial ecology.*—State the known or anticipated effects of construction and operation of the proposed facility on local flora and fauna under each fuel scenario. Indicate whether clearing the land for construction and operational activities will cause loss of habitat to threatened or endangered species, or species of commercial or sport value. Identify impacts on such species. Compare estimated short and long term concentrations of SO<sub>2</sub>, NO<sub>x</sub>, and particulates, presented in the preceding sections, with the threshold concentrations for damage to vegetation or animal life indigenous to the surrounding area. In the bibliography include references to sources upon which this discussion is based.

f. *Historical and archeological resources.*—The impacts of construction and operation under each fuel scenario on socio-cultural resources should be described, indicating whether the pollutants or other results of fuel burning would affect known historical, archaeological, or cultural resources in the area, or scenic and natural resources. Particular attention should be given to impact to sites which are listed as eligible for inclusion on the National Register of Historic Places. Discuss any mitigative measures deemed appropriate. Include the results (letters, etc.) of any consultation with appropriate state or federal Historic Preservation Officers.

g. *Socio-economics.*—Describe the impact which facility construction or operation under each fuel scenario would have on the socioeconomic regime and income levels of the surrounding area. Discuss whether the action would cause increased employment, influx of population, or increased pressure on such community services as housing availability, school system, police and fire protection, medical services, municipal water supply, and sewage disposal systems.

h. *Noise.*—Under each fuel scenario discuss the impact of increased noise levels attributed to the facility on nearby sensitive receptors.

## B. Summary of Impacts

Summarize and compare in graphic and/or tabular form the impacts projected in part A for the proposed action and each alternative.

## C. Impacts of No-Build Alternative

Discuss the environmental impact of a decision not to build or expand the facility following the outline given in part A of this section. The petitioner should evaluate the impacts of the no-build option in relation to the proposed action and should discuss only those impacts which differ from the impacts of the proposed action.

<sup>1</sup> Specify the EPA model which was used, the assumptions underlying the model and the limitations of the model.



**IV. Regulatory Requirements Governing the Facility**

List all Federal, State, and local permits which must be obtained for the construction or operation of the facility. Also list any other Federal, State, or local requirements which must be met. State how long the process of obtaining each permit (or complying with each other requirement) is expected to take, and when you applied or expect to apply for the permit (or initiate the process to comply with any other regulation).

Indicate whether an environmental impact statement which may adequately reflect the facility's construction and operation under each fuel scenario is being or will be prepared by any other Federal or State agency.

**V. Bibliography**

List alphabetically all sources consulted in preparing this analysis.

**VI. Appendices**

[FR Doc. 79-34091 Filed 11-2-79; 8:45 am]

BILLING CODE 6450-01-M



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Monday  
November 5, 1979

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**Part VII**

**Environmental  
Protection Agency**

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**Enforcement of the Federal Insecticide,  
Fungicide and Rodenticide Act;  
Registration, Reregistration and  
Classification Procedures; Final  
Regulation**



**ENVIRONMENTAL PROTECTION AGENCY****40 CFR Part 162**

[FRL 1304-1; OPP-30007A]

**Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act; Registration, Reregistration and Classification Procedures****AGENCY:** Environmental Protection Agency (EPA), Office of Pesticide Programs.**ACTION:** Final regulation.

**SUMMARY:** The intent of this final regulation is to exempt those pesticides offered solely for use on humans that are also new drugs within the meaning of Section 201(p) of the Federal Food, Drug and Cosmetic Act from the provisions of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended in 1972, 1975 and 1978 (92 Stat. 819; 7 U.S.C. 136). This action is taken because of the similarities of the registration processes that are used for registering new human drugs by EPA and the Food and Drug Administration (FDA). The elimination of review of these new drug product applications by EPA is intended to lessen the duplication of time and resources by both agencies and the sponsors of these products.

The regulation also clarifies the policy of EPA relative to the registration of pesticide products that are not new drugs or new animal drugs.

**DATES:** This rule shall be effective on or before December 5, 1979.

**FOR FURTHER INFORMATION CONTACT:** Jay Ellenberger, Registration Division (TS-767), Office of Pesticide Programs, EPA (202-426-9490).

**SUPPLEMENTARY INFORMATION:** On October 13, 1978, EPA proposed this rule to exempt certain pesticides from the registration requirements of FIFRA (43 FR 47215). The pesticides affected are those that are offered solely for use on humans and are "new drugs" within the meaning of section 201(p) of the Federal Food, Drug and Cosmetic Act (FFDCA).

As explained fully in the proposal, EPA, after consultation with the FDA, determined that this exemption from provisions of the FIFRA is appropriate because registration requirements for these products under the FIFRA are substantially identical to those required for approval of a new drug for human use under the FFDCA.

Accordingly, EPA and FDA concluded that the dual review of pesticide/new

drug products offered solely for human use represents an expensive duplication of time and resources for both the Agencies and the sponsors of these products without any significant increase in benefits to public health and/or to the environment. It is further concluded that regulations of these products solely by FDA under the FFDCA would adequately serve the intent of FIFRA.

**Comments**

One comment was received in response to the proposal, asking why an exemption cannot also be extended to pesticides that are drugs but which are not new drugs.

This rule is not intended to exempt these products from registration under the FIFRA, because FDA has made no formal determination as to their safety and effectiveness. FDA does plan to develop, on a generic class basis, monographs setting forth conditions whereby these drugs may be generally recognized as safe and effective and not misbranded, and to establish these conditions by regulations. Therefore, the rule provides that, when FDA does develop a monograph, products meeting its conditions will also be exempt from FIFRA registration (see 40 CFR 162.5(b)(6)(ii)).

**Scientific Advisory Panel and USDA Review**

On June 7, 1979, a copy of this final regulation was transmitted to the FIFRA Scientific Advisory Panel (SAP) as required by section 25(d). On June 20, 1979, the SAP waived scientific review and comment on the final regulation.

On June 1, 1979, a copy of this final regulation was sent to the Secretary of Agriculture for comment (44 FR 32684) as required by section 25(a)(2)(B). The Secretary did not comment in writing to the Administrator within the 15-day comment period, as provided by this section, regarding any objections to the publication of this document in the Federal Register.

Pursuant to section 25(a)(3) of FIFRA, a copy of the final regulation was forwarded to the Committee on Agriculture of the House of Representatives and the Committee of Agriculture and Forestry of the Senate on June 8, 1979.

**Executive Order 12044**

This final regulation is a "minor" regulation under EPA's proposal (43 FR 29891), for implementing Executive Order 12044, "Improving Government Regulations" (43 FR 12661), and as such, does not require preparation of a Regulatory Analysis.

(Secs. 3 and 25(b), Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended in 1972, 1975 and 1978 (92 Stat. 819; 7 U.S.C. 136))

Dated: October 30, 1979.

Douglas M. Costle,  
Administrator.

40 CFR Part 162 is amended by redesignating § 162.5(b)(6) as new § 162.5(b)(7), and by adding a new § 162.5(b)(8), to read:

\* \* \* \* \*

§ 162.5 Pesticides that are also new drugs for human use.

\* \* \* \* \*

(b) \* \* \*

(8) a pesticide product that is offered solely for human use and is also (i) a new drug within the meaning of section 201(p) of the Federal Food, Drug, and Cosmetic Act, or (ii) an article that has been determined by the Secretary of Health, Education, and Welfare not to be a new drug by a regulation establishing conditions of use for the article, is exempt from the requirements of the FIFRA. Such products are subject solely to regulation by the Food and Drug Administration in accordance with the Federal Food, Drug, and Cosmetic Act and implementing regulations set forth in Title 21 of the Code of Federal Regulations.

\* \* \* \* \*

**§ 162.7 [Amended]**

The Administrator also amends 40 CFR Part 162 by revising § 162.7(d)(3)(vi) to read:

\* \* \* \* \*

(d) \* \* \*

(3) \* \* \*

(vi) EPA has been notified by FDA that the product complies with the requirements of the Food and Drug Administration if the product, in addition to being a pesticide, is a "drug" within the meaning of section 201(g) of that Act, but is not a "new drug" or "new animal drug" under sections 201(p) and 201(w) respectively of the Federal Food, Drug, and Cosmetic Act.

\* \* \* \* \*

[FR Doc. 79-34135 Filed 11-2-79; 8:45 am]  
BILLING CODE 6560-01-M



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Monday  
November 5, 1979

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**Part VIII**

**Federal Election  
Commission**

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**Presidential Primary Matching Fund**





**FEDERAL ELECTION COMMISSION****11 CFR Part 9033**

[Notice 1979-19]

**Presidential Primary Matching Fund****AGENCY:** Federal Election Commission.**ACTION:** Notice of proposed rulemaking.

**SUMMARY:** The Commission requests comments on proposed rules to govern the administration of the Presidential Primary Matching Fund Account provided for in Chapter 96 of Title 26 United States Code. The revisions of the regulations at 11 CFR Chapter I concern the suspension of matching fund payments to candidates who exceed the expenditure limitations at 11 CFR 9035. The proposed revision would eliminate the current procedure permitting resumption of payments to such a candidate.

**DATES:** Comments must be received on or before December 5, 1979.

**ADDRESSES:** Address comments to Patricia Ann Fiori, Assistant General Counsel, Federal Election Commission, 1325 K Street, N.W., Washington, D.C. 20463.

**FOR FURTHER INFORMATION CONTACT:** Patricia Ann Fiori, Assistant General Counsel (202) 523-4143.

**SUPPLEMENTARY INFORMATION:** Current regulations provide that if the Commission determines that a publicly financed candidate has knowingly and willfully exceeded expenditure limitations, matching fund payments to that candidate will be suspended. Current regulations also provide that a candidate whose payments have been suspended may become entitled to resumption of payments upon repayment of an amount equal to the excessive expenditure and payment or agreement to pay any civil or criminal penalties resulting from the violation. The proposed revisions would permit the Commission to suspend payments to a candidate who knowingly, willfully and substantially exceeds expenditure limitations. Moreover, such a candidate would be prohibited from receiving any further payments.

**PART 9033—ELIGIBILITY**

11 CFR 9033.8 is revised to read as follows:

**§ 9033.8 Suspension of Payments.**

(a) If the Commission has reason to believe that a candidate has knowingly, willfully and substantially failed to comply with the disclosure requirements of 2 USC 434 and 11 CFR Part 104, or

that a candidate has knowingly, willfully and substantially exceeded the expenditure limitations at 11 CFR 9035, the Commission may make an initial determination to suspend payments to that candidate.

(b) The Commission shall notify the candidate of its initial determination, giving the legal and factual reasons for the determination and advising the candidate of the evidence upon which its initial determination is based. The candidate shall be given an opportunity within 20 days of the Commission's notice to comply with the above cited provisions or to submit written legal or factual materials to demonstrate that he or she is not in violation of those provisions.

(c) The Commission shall consider any written legal or factual materials submitted by the candidate in making its final determination. Such materials may be submitted by counsel if the candidate so desires.

(d) A final determination to suspend payments by the Commission shall be accompanied by a written statement of reasons for the Commission's action. This statement shall explain the reasons underlying the Commission's determination and shall summarize the results of any investigation upon which the determination is based.

(e)(1) A candidate whose payments have been suspended for failure to comply with reporting requirements may become entitled to receive payments if he or she complies with reporting requirements and pays or agrees to pay any civil or criminal penalties resulting from failure to comply.

(2) A candidate whose payments were suspended for exceeding expenditure limitations shall not be entitled to receive further matching payments under 11 CFR 9034.1.

Dated: October 30, 1979.

Robert O. Tiernan,  
*Chairman, Federal Election Commission.*

[FR Doc. 79-34145 Filed 11-2-79; 8:45 am]

BILLING CODE 6715-01-M



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**Monday**  
**November 5, 1979**

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**Part IX**

**Federal Election  
Commission**

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**Presidential Election Campaign Fund;  
Presidential Primary Matching Fund**

**FEDERAL ELECTION COMMISSION****11 CFR Parts 9032, 9033, 9034, and 9035****[Notice 1979-20]****Presidential Election Campaign Fund; Presidential Primary Matching Fund****AGENCY:** Federal Election Commission.**ACTION:** Transmittal of Regulations to Congress.

**SUMMARY:** FEC regulations governing the administration of the Presidential Primary Matching Payment Account provided for in Chapter 96 of Title 26, United States Code have been revised. The revised regulations at 11 CFR Chapter I have been transmitted to Congress pursuant to 26 USC 9039(c). The following revisions to the Presidential Primary Matching Fund regulations require a candidate to certify prior to receiving public funds that he or she *has not* exceeded and *will not* exceed the expenditure limitations at 11 CFR Part 9035. Moreover, under these revisions, a candidate who has knowingly, willfully and substantially exceeded the expenditure limitations at 11 CFR Part 9035 prior to requesting certification for matching funds will be ineligible to receive public funds. In addition, a number of technical amendments are made to 11 CFR Parts 9033 and 9034 to conform to the new regulations. Further information on the effect of the revised regulations is contained in the supplementary information below. 26 USC 9039(c) requires that any rule or regulation prescribed by the Commission to implement Chapter 96 of Title 26, United States Code be transmitted to the Speaker of the House of Representatives and the President of the Senate prior to final promulgation. If neither House of Congress disapproves the regulations within 30 legislative days of their transmittal, the Commission may prescribe the regulations in question. The following regulations were transmitted to Congress on October 31, 1979.

**EFFECTIVE DATE:** Further action, including the announcement of an effective date, will be taken by the Commission after these regulations have been before Congress 30 legislative days in accordance with 26 U.S.C. 9039(c).

**FOR FURTHER INFORMATION CONTACT:** Patricia Ann Fiori, Assistant General Counsel, 1325 K Street N.W., Washington, D.C. 20510 (202) 523-4143.

**SUPPLEMENTARY INFORMATION:** The Commission received two comments in

response to its September 27, 1979 Notice of Proposed Rulemaking (44 FR 5594). These comments recommended that the proposed regulations be modified by removing any option for a candidate who has knowingly and willfully exceeded expenditure limitations to become eligible for public funds. This recommendation has been incorporated into the revised regulations.

**Explanation and Justification of Revised Regulations Governing Presidential Primary Matching Fund Eligibility**

The following revisions to the Presidential Primary Matching Fund regulations require a candidate to certify prior to receiving public funds that he or she *has not* exceeded and *will not* exceed the expenditure limitations at 11 CFR Part 9035. Moreover, under these revisions, a candidate who has knowingly, willfully and substantially exceeded the expenditure limitations at 11 CFR Part 9035 prior to requesting certification for matching funds will be ineligible to receive public funds.

Statutory provisions at 26 U.S.C. 9033(b)(1) state that in order to receive matching funds, a candidate must certify that the candidate and his or her authorized committees "will not incur qualified campaign expenses in excess of the limitations on such expenses under [26 U.S.C.] section 9035." While eligibility requirements of Section 9033(b)(1) may be interpreted as having only prospective application, the expenditure limitation provisions, as well as the legislative history and underlying purpose of the public financing statute indicate that the certification requirements with regard to candidate expenditures should have retrospective, as well as prospective, application.

Expenditure limitation provisions at 26 U.S.C. 9035 state that "No candidate shall knowingly incur qualified campaign expenses in excess of" certain specified amounts. The term "candidate" is defined very broadly to mean any "individual who seeks nomination for election to be President of the United States" (26 U.S.C. 9032(2)). Consequently, under 26 U.S.C. 9035, the expenditure limitations may be viewed as applying to a presidential candidate from the time his candidacy begins, not only from the time of certification. Hence, 26 U.S.C. 9035 strongly indicates that expenditure limitations applicable to presidential primary candidates who seek public funds are to be given retrospective, as well as prospective, application.

Further indication that the expenditure limitations are to be given

retrospective application can also be found in the legislative history of the statute which established the Primary Matching Fund system.<sup>1</sup> The certification requirements of 26 U.S.C. 9033(b) were enacted as part of the Federal Election Campaign Act Amendments of 1974 (Pub. L. 93-443, 88 Stat. 1263, 1974). That law, as originally adopted, imposed expenditure limitations on all federal candidates, regardless of whether those candidates accepted public funding. Thus, when Congress enacted the expenditure limitations and certification requirements for publicly financed candidates, it did so on the assumption that expenditures by *all* candidates, not only publicly financed candidates, would be limited.<sup>2</sup> In that context, the use of the future tense at 26 U.S.C. 9033(b)(1) does not necessarily indicate that Congress intended to give only prospective application to the expenditure limitations and certification requirements. Rather, it is more consistent with the legislative history of the public financing statute to interpret the expenditure limitation and certification requirements as having both retrospective and prospective application.

Moreover, retrospective application of the expenditure limitations to candidates who seek matching funds is consistent with the manifest purpose of the statute establishing the public financing system for presidential candidates.<sup>3</sup> The legislative history of the matching fund system indicates that the primary purpose of that legislation was to curb "abuses by special interest groups and big money . . . in connection with campaigns to the office of President."<sup>4</sup> Congress sought to further this purpose by "drastically reducing the amounts which may be expended by the candidate."<sup>5</sup> It would thus run counter to the very purpose of the public financing statute to allow candidates who knowingly, willfully and substantially exceed expenditure

<sup>1</sup> Note that in *Train v. Colorado Public Interest Research Group, Inc.* 426 U.S. 1, 9-10 (1976), the Court stated that however clear a statute may appear on its face, "there certainly is no rule of law forbidding a court from resorting to legislative history to determine the intent of Congress."

<sup>2</sup> Note that in *Buckley v. Valeo*, 424 U.S. 1 (1976), those provisions imposing limitations on campaign expenditures by candidates who had not accepted public funding were found unconstitutional.

<sup>3</sup> In considering statutory language, the court, in *Carlledge v. Miller*, 457 F. Supp. 1140, 1154 (1978), noted that "a literal interpretation of the words of a statute is not always a safe guide to its meaning" and should be "disregarded when it defeats the manifest purpose of the statute as a whole."

<sup>4</sup> H.R. Rep. No. 93-1239, 94th Cong., 2nd Sess. 13 (1974).

<sup>5</sup> S. Rep. No. 93-689, 94th Cong., 2nd Sess. 5 (1974).

limitations prior to seeking certification to subsequently receive public funds. Such an outcome would permit a candidate to make vast amounts of campaign expenditures, and nevertheless receive matching payments, thereby defeating the basic purpose underlying the enactment of public financing.

An explanation of each revision to 11 CFR Chapter I follows.

#### 11 CFR 9032.9:

##### § 9032.9 *Qualified campaign expense.*

The only revision in the definition of qualified campaign expense is to specify that if the incurrence or payment of an expenditure violates any regulation prescribed under federal or appropriate State law, that expenditure will not be considered a qualified campaign expense. Regulations promulgated on May 7, 1979, follow the statutory language of 26 U.S.C. 9032(9)(B) and provide only that an expenditure which violates any law of the United States or of the State in which the expense is incurred or paid is not a qualified campaign expense. Extending the exclusion to expenditures which violate regulations prescribed under such federal or State law furthers the intent of 26 U.S.C. 9032(9)(B) and is sound public policy.

With this revision, it will be clear that any expenditure made by a candidate in excess of the expenditure limitations under 11 CFR Part 9035 will not be considered a qualified campaign expense. Regulations at 11 CFR Part 9035 provide that no candidate, from the time he or she becomes a candidate, may exceed specified limitations on campaign expenditures. Thus, any expenditures made by a candidate prior to certification in excess of those limitations will not be considered qualified campaign expenses and hence are subject to repayment under 11 CFR 9038.2

#### 11 CFR 9033.2(b):

##### § 9033.2 *Candidate certification; threshold amount.*

Subsection (b) is revised to require a candidate and that candidate's authorized committees to certify prior to receiving matching funds that they *have not exceeded* and *will not exceed* expenditure limitations at 11 CFR Part 9035. Regulations promulgated on May 7, 1979 required only that the candidate and his or her committees certify that they *will not exceed* expenditure limitations at 11 CFR Part 9035. As discussed above, this revision is consistent with the basic underlying purposes of the public financing statute.

[See also explanation and justification of 11 CFR Part 9035.]

#### 11 CFR 9033.3:

##### § 9033.3 *Expenditure limitation certification.*

A new section dealing with the expenditure limitation certification is created. Under this section, if the Commission determines that a candidate has knowingly, willfully and substantially exceeded the expenditure limitations at 11 CFR Part 9035 prior to applying for certification, that candidate is ineligible to receive matching funds. As discussed above, it would be inconsistent with the basic underlying purposes of the public financing statute to permit such candidates to receive public funds.

This section also sets forth a procedure under which a candidate may challenge the Commission's initial determination that he or she is ineligible. This procedure includes the following elements: Notice to the candidate of the legal and factual reasons for the Commission's determination; opportunity for the candidate to present, in writing, legal and factual materials to demonstrate that he or she has not knowingly and willfully exceeded expenditure limitations; a final determination by the Commission on the basis of all evidence presented; and a statement of reasons underlying the Commission's determination.

The procedure set forth in this section comports with due process requirements. The Federal Election Campaign Act does not provide that Administrative Procedure Act (APA) requirements for adjudicative hearings (5 U.S.C. 554-557) apply to determinations by the Commission, while APA requirements for a full trial type hearing may not be applicable, procedural due process requirements mandate that prior to denial of eligibility a candidate be afforded some type of opportunity to demonstrate to the Commission that such denial is not warranted. (See K. Davis, Administrative Law of the Seventies, section 7.00-1-3 (Supp. 1977); *Mathews v. Eldridge*, 424 U.S. 319 (1976).) (It should be noted that even if the APA requirements were applicable to determinations by the Commission, the APA itself contains a significant exception to the requirement for a full trial type hearing by providing for the submission of evidence in written form under 5 U.S.C. 556(d).)

#### 11 CFR Part 9035:

##### *Part 9035 Campaign expenditure limitations.*

This section is revised to provide that no "candidate" shall exceed certain specified limitations. The term "candidate" is very broadly defined at 11 CFR 9032.2 to include all candidates who seek nomination for election to the office of President. Regulations promulgated on May 7, 1979, made the expenditure limitations applicable to only those candidates who had accepted matching funds. With this revision, it is clear that the expenditure limitations apply to a candidate from the time the individual becomes a candidate, rather than from the time of certification for matching funds.

This section is also revised to broaden the reference to expenditures which are subject to limitation. Regulations promulgated on May 7, 1979 provided that a candidate was limited in the amount of "qualified campaign expenses" he or she could incur. The revised regulation provides that a candidate and his or her authorized committees will not incur "expenditures in connection with the candidate's campaign for nomination" in excess of the specified limitation. Any expenditure which is in excess of the specified limitations is by definition not a "qualified campaign expense" because the incurring or payment of that expenditure constitutes a violation of federal law and regulation prescribed thereunder. Nevertheless, expenditures in excess of the limitations should obviously be considered expenditures which count against the candidate's limitation.

11 CFR 9032.9 (a) and (a)(1) through (a)(3) are revised to read as follows:

##### § 9032.9 *Qualified campaign expense.*

(a) "Qualified campaign expense" means a purchase, payment, distribution, loan, advance, deposit, or gift of money or anything of value:

(1) Incurred by a candidate or his or her authorized committees from the date the individual becomes a candidate through the last day of the candidate's eligibility as determined under 11 CFR 9033.4;

(2) Made in connection with his or her campaign for nomination; and

(3) Neither the incurrence nor payment of which constitutes a violation of any law of the United States or of any law of any State in which the expense is incurred or paid, or of any regulation prescribed under such law of the United States or of any State, except that any State law which has been preempted by the Federal Election Campaign Act of 1971, as amended, shall not be

considered a State law for purposes of this Subchapter.

11 CFR 9033.2(b) is revised to read as follows:

**§ 9033.2 Candidate certifications; threshold amount.**

(b) The candidate and his or her authorized committee(s) shall certify that they have not incurred and will not incur expenditures in connection with the candidate's campaign for nomination, which expenditures are in excess of the limitations under 11 CFR Part 9035.

Present §§ 9033.3 through 9033.8 are redesignated as §§ 9033.4 through 9033.9 respectively. A new § 9033.3 is added to read as follows:

**§ 9033.3 Expenditure limitation certification.**

(a) If the Commission makes an initial determination that a candidate or the candidate's authorized committee(s) have knowingly, willfully, and substantially exceeded the expenditure limitations at 11 CFR Part 9035 prior to that candidate's application for certification, the Commission may make an initial determination that the candidate is ineligible to receive matching funds.

(b) The Commission shall notify the candidate of its initial determination, provide the legal and factual reasons for its initial determination and advise the candidate of the evidence upon which its initial determination is based. The candidate will be given an opportunity, within 20 days of the Commission's notice, to submit written legal or factual materials to demonstrate that he or she has not knowingly, willfully and substantially exceeded the expenditure limitations at 11 CFR Part 9035.

(c) The Commission will consider all written legal or factual materials submitted by the candidate under 11 CFR 9033.3(b) in making its final determination. These materials may be submitted by counsel on the candidate's behalf.

(d) A final determination of the candidate's ineligibility by the Commission shall be accompanied by a written statement of reasons for the Commission's action. This statement shall explain the reasons underlying the Commission's determination and shall summarize the results of any investigation upon which the determination is based.

(e) A candidate who receives a final determination of ineligibility under 11 CFR 9033.3(d) shall be ineligible to

receive matching fund payments under 11 CFR 9034.1.

11 CFR 9035.1 is revised, including the caption to read as follows:

**§ 9035.1 Campaign expenditures limitations.**

(a) No candidate or his or her authorized committee(s) shall knowingly incur expenditures in connection with the candidate's campaign for nomination, which expenditures, in the aggregate, exceed \$10,000,000 (as adjusted under 2 USC 441a(c)), except that the aggregate expenditures by a candidate in any one State shall not exceed the greater of: 16 cents (as adjusted under 2 USC 441a(c)) multiplied by the voting age population of the State (as certified under 2 USC 441a(e)); or \$200,000 (as adjusted under 2 USC 441a(c)).

(b) The expenditure limitations of 11 CFR 9035.1 shall not apply to a candidate who at no time receives matching funds.

The following technical amendments are made to 11 CFR Parts 9033 and 9034:

1. 11 CFR 9033.1(c): Delete "§ 9033.8" and substitute "11 CFR 9033.9."
2. 11 CFR 9033.2(f): Delete "2 U.S.C. 441a(b)" and substitute "11 CFR 9035"; and delete "11 CFR 9033.8" and substitute "11 CFR 9033.9."
3. 11 CFR 9033.5, as redesignated: Delete "paragraph (a), (b) or (c) (11 CFR 9033.4(a), (b) (c))" and substitute "11 CFR 9033.5(a), (b) or (c)."
4. 11 CFR 9033.5(a)(3), as redesignated: Delete "§ 9033.5" and substitute "11 CFR 9033.6."
5. 11 CFR 9033.5(b)(1), as redesignated: Delete "11 CFR 9033.6" and substitute "11 CFR 9033.7."
6. 11 CFR 9033.6(a), as redesignated: Delete "subsection (e) (11 CFR 9033.5(e))" and substitute "11 CFR 9033.6(e)."
7. 11 CFR 9033.7(a), as redesignated: Delete § 9033.4(b)" and substitute "11 CFR 9033.5(b)"; and delete "11 CFR 9033.5(e)" and substitute "11 CFR 9033.6(e)."
8. 11 CFR 9033.7(c), as redesignated: Delete 11 CFR 9033.5(e)" and substitute "11 CFR 9033.6(e)."
9. 11 CFR 9033.7(d), as redesignated: Delete "this section (11 CFR 9033.6)" and substitute "11 CFR 9033.7."
10. 11 CFR 9033.8(a), as redesignated: Delete "§ 9033.4(a)" and substitute "11 CFR 9033.5(a)"; and delete "11 CFR 9033.5(e)" and substitute "11 CFR 9033.6(e)."
11. 11 CFR 9033.8(b), as redesignated: Delete "11 CFR 9033.4(b)" and substitute "11 CFR 9033.5(b)."

12. 11 CFR 9033.9(a), as redesignated: Delete "2 U.S.C. 441a(b)" and substitute "11 CFR 9035".

13. 11 CFR 9034.1(a): Delete "11 CFR 9033.4" and substitute "11 CFR 9033.5."

14. 11 CFR 9034.1(c): Delete "§ 9033.7" and substitute "11 CFR 9033.8;" and delete "11 CFR 9033.8(e)" and substitute "11 CFR 9033.9(e)."

15. 11 CFR 9034.1(d): Delete "2 U.S.C. 441a(b)(1)(A) as adjusted by 2 U.S.C. 441a(c)" and substitute "11 CFR 9035."

16. 11 CFR 9034.4(b): Delete "11 CFR 9033.4" and substitute "11 CFR 9033.5."

17. 11 CFR 9034.4(d): Delete "2 U.S.C. 441a(b)(1)(A)" and substitute "11 CFR 9035."

18. 11 CFR 9034.4(h): Delete "11 CFR 9033.7" and substitute "11 CFR 9033.8;" and delete "11 CFR 9033.8(e)" and substitute "11 CFR 9033.9(e)."

19. 11 CFR 9034.5(a)(1): Delete "11 CFR 9033.4" and substitute "11 CFR 9033.5."

Dated: October 30, 1979.

Robert O. Tiernan,  
Chairman, Federal Election Commission.

[FR Doc. 79-34148 Filed 11-2-79; 8:45 am]

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# Reader Aids

Federal Register

Vol. 44, No. 215

Monday, November 5, 1979

## INFORMATION AND ASSISTANCE

Questions and requests for specific information may be directed to the following numbers. General inquiries may be made by dialing 202-523-5240.

### Federal Register, Daily Issue:

- 202-783-3238 Subscription orders (GPO)  
202-275-3054 Subscription problems (GPO)  
"Dial-a-Reg" (recorded summary of highlighted documents appearing in next day's issue):  
202-523-5022 Washington, D.C.  
312-663-0884 Chicago, Ill.  
213-688-6694 Los Angeles, Calif.  
202-523-3187 Scheduling of documents for publication  
523-5240 Photo copies of documents appearing in the Federal Register  
523-5237 Corrections  
523-5215 Public Inspection Desk  
523-5227 Finding Aids  
523-5235 Public Briefings: "How To Use the Federal Register."

### Code of Federal Regulations (CFR):

- 523-3419  
523-3517  
523-5227 Finding Aids

### Presidential Documents:

- 523-5233 Executive Orders and Proclamations  
523-5235 Public Papers of the Presidents, and Weekly Compilation of Presidential Documents

### Public Laws:

- 523-5266 Public Law Numbers and Dates, Slip Laws, U.S.  
-5282 Statutes at Large, and Index  
275-3030 Slip Law Orders (GPO)

### Other Publications and Services:

- 523-5239 TTY for the Deaf  
523-5230 U.S. Government Manual  
523-3408 Automation  
523-4534 Special Projects  
523-3517 Privacy Act Compilation

## FEDERAL REGISTER PAGES AND DATES, NOVEMBER

- 62879-63076.....1  
63077-63508.....2  
63509-64058.....5

## CFR PARTS AFFECTED DURING NOVEMBER

At the end of each month, the Office of the Federal Register publishes separately a list of CFR Sections Affected (LSA), which lists parts and sections affected by documents published since the revision date of each title.

### 3 CFR

- Administrative Orders:  
Presidential Determinations:  
No. 80-1 of  
October 15, 1979..... 63077  
Proclamations:  
4698..... 63509  
4699..... 63511  
4700..... 63513

### 5 CFR

- 213..... 63079  
315..... 63080  
733..... 63080

### 7 CFR

- 427..... 62879  
429..... 62879  
724..... 63081  
910..... 63081  
959..... 63082  
1942..... 62880  
Proposed Rules:  
210..... 63107  
235..... 63107  
271..... 63496  
272..... 63496  
273..... 63496  
278..... 63496  
982..... 63547  
989..... 62901  
1464..... 63107

### 9 CFR

- 1..... 63488  
2..... 63488  
3..... 63488  
92..... 63082  
113..... 63083  
160..... 63488  
161..... 63488

### 10 CFR

- 0..... 62880  
20..... 63515  
21..... 63515  
71..... 63083  
73..... 63515  
211..... 63515  
450..... 63519  
455..... 63519  
Proposed Rules:  
Ch. II..... 63108  
Ch. III..... 63108  
Ch. X..... 63108  
221..... 63109

### 11 CFR

- 107..... 63036  
114..... 63036  
9008..... 63036

- 9032..... 63756  
9033..... 63756  
9034..... 63756  
9035..... 63756  
Proposed Rules:  
9033..... 63753

### 12 CFR

- 27..... 63084  
Proposed Rules:  
211..... 62902, 62903

### 14 CFR

- 13..... 63720  
39..... 62881, 62882, 63519-  
63521  
71..... 62883, 62884  
75..... 62884  
91..... 62884  
97..... 62885  
Proposed Rules:  
23..... 62906  
25..... 62906  
39..... 62907, 63547  
71..... 62908, 63548, 63549  
97..... 62909  
107..... 63048  
108..... 63048  
121..... 63048  
129..... 63048  
135..... 62906, 63048

### 16 CFR

- 3..... 62887  
Proposed Rules:  
13..... 63114, 63550  
454..... 62911

### 17 CFR

- 210..... 62888  
Proposed Rules:  
250..... 62912  
259..... 62912

### 18 CFR

- 271..... 62889  
292..... 63114

### 20 CFR

- Proposed Rules:  
208..... 62912  
260..... 62912, 63096

### 21 CFR

- 520..... 63096  
522..... 63097  
Proposed Rules:  
353..... 63270  
868..... 63292-63426

### 22 CFR

- 506..... 63098

<b>23 CFR</b>		65.....	63530
658.....	63680	67.....	63531-63534
<b>Proposed Rules:</b>		<b>Proposed Rules:</b>	
659.....	63682	67.....	63117-63120, 63553-63557
<b>26 CFR</b>		205.....	63058
5.....	63522	<b>45 CFR</b>	
<b>30 CFR</b>		<b>Proposed Rules:</b>	
<b>Proposed Rules:</b>		405.....	63120
870.....	63737	1152.....	63120
871.....	63737	<b>46 CFR</b>	
872.....	63737	502.....	62898
873.....	63737	<b>Proposed Rules:</b>	
874.....	63737	61.....	62915
875.....	63737	<b>47 CFR</b>	
876.....	63737	21.....	63105
877.....	63737	22.....	63105
878.....	63737	<b>Proposed Rules:</b>	
879.....	63737	64.....	63558
880.....	63737	73.....	62917
881.....	63737	<b>49 CFR</b>	
882.....	63737	1033.....	62899, 63105
883.....	63737	<b>Proposed Rules:</b>	
884.....	63787	666.....	62918
885.....	63737	1056.....	63121
886.....	63737	1301.....	63121
887.....	63737	<b>50 CFR</b>	
888.....	63737	32.....	63106
<b>32 CFR</b>		33.....	62899
625.....	63099	285.....	62900
<b>33 CFR</b>		<b>Proposed Rules:</b>	
124.....	63672	Ch. VI.....	63558
126.....	63672	17.....	63474
160.....	62891	32.....	63496
161.....	63672		
164.....	63672		
183.....	63523		
<b>36 CFR</b>			
51.....	62893		
<b>37 CFR</b>			
<b>Proposed Rules:</b>			
202.....	62913		
<b>39 CFR</b>			
775.....	63524		
<b>40 CFR</b>			
52.....	63102		
65.....	63102		
80.....	62897		
81.....	63102		
162.....	63749		
<b>Proposed Rules:</b>			
Ch. I.....	63552		
52.....	63114		
60.....	62914		
85.....	62915		
230.....	63552		
<b>41 CFR</b>			
14-1.....	63529		
14-7.....	63529		
<b>Proposed Rules:</b>			
3-1.....	63115		
3-7.....	63115		
<b>44 CFR</b>			
64.....	63529		



**AGENCY PUBLICATION ON ASSIGNED DAYS OF THE WEEK**

The following agencies have agreed to publish all documents on two assigned days of the week (Monday/Thursday or Tuesday/Friday).

This is a voluntary program. (See OFR NOTICE FR 32914, August 6, 1976.)

Monday	Tuesday	Wednesday	Thursday	Friday
DOT/SECRETARY*	USDA/ASCS		DOT/SECRETARY*	USDA/ASCS
DOT/COAST GUARD	USDA/APHIS		DOT/COAST GUARD	USDA/APHIS
DOT/FAA	USDA/FNS		DOT/FAA	USDA/FNS
DOT/FHWA	USDA/FSQS		DOT/FHWA	USDA/FSQS
DOT/FRA	USDA/REA		DOT/FRA	USDA/REA
DOT/NHTSA	MSPB/OPM		DOT/NHTSA	MSPB/OPM
DOT/RSPA	LABOR		DOT/RSPA	LABOR
DOT/SLSDC	HEW/FDA		DOT/SLSDC	HEW/FDA
DOT/UMTA			DOT/UMTA	
CSA			CSA	

Documents normally scheduled for publication on a day that will be a Federal holiday will be published the next work day following the holiday.

Comments on this program are still invited. Comments should be submitted to the Day-of-the-Week Program Coordinator, Office of the Federal Register, National Archives and Records Service, General Services Administration, Washington, D.C. 20408

\*NOTE: As of July 2, 1979, all agencies in the Department of Transportation, will publish on the Monday/Thursday schedule.

**REMINDERS**

The items in this list were editorially compiled as an aid to Federal Register users. Inclusion or exclusion from this list has no legal significance. Since this list is intended as a reminder, it does not include effective dates that occur within 14 days of publication.

**Rules Going Into Effect Today**

Note: There were no items eligible for inclusion in the list of Rules Going Into Effect Today.

**List of Public Laws****Last Listing November 1, 1979**

This is a continuing listing of public bills from the current session of Congress which have become Federal laws. The text of laws is not published in the Federal Register but may be ordered in individual pamphlet form (referred to as "slip laws") from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (telephone 202-275-3030).

**H.R.5506 / Pub. L. 96-94** To amend the Energy Policy and Conservation Act to extend for two months certain authorities relating to the international energy program. (Oct. 31, 1979; 93 Stat. 720) Price \$.75.

**H.R.1825 / Pub. L. 96-95** "Archaeological Resources Protection Act of 1979". (Oct. 31, 1979; 93 Stat. 721) Price \$.75.

**H.R.5386 / Pub. L. 96-96** To amend the Higher Education Act of 1965 to provide that any reduction in the amount appropriated for fiscal year 1980 pursuant to section 101(a) of such Act from the amount so appropriated for fiscal year 1979 shall be borne equally by all the States. (Oct. 31, 1979; 93 Stat. 729) Price \$.75.

**S.436 / Pub. L. 96-97** To amend section 15(d) of the Tennessee Valley Authority Act of 1933 to increase the amount of debt which may be incurred by the Tennessee Valley Authority. (Oct. 31, 1979; 93 Stat. 730) Price \$.75.

**THE FEDERAL REGISTER: WHAT IT IS AND HOW TO USE IT**

- FOR:** Any person who uses the Federal Register and Code of Federal Regulations.
- WHO:** The Office of the Federal Register.
- WHAT:** Free public briefings (approximately 2½ hours) to present:
1. The regulatory process, with a focus on the Federal Register system and the public's role in the development of regulations.
  2. The relationship between Federal Register and the Code of Federal Regulations.
  3. The important elements of typical Federal Register documents.
  4. An introduction to the finding aids of the FR/CFR system.
- WHY:** To provide the public with access to information necessary to research Federal agency regulations which directly affect them, as part of the General Services Administration's efforts to encourage public participation in Government actions. There will be no discussion of specific agency regulations.

**WASHINGTON, D.C.**

**WHEN:** Nov. 16\* and 30; Dec. 14; at 9 a.m. (identical sessions)

**WHERE:** Office of the Federal Register, Room 9409, 1100 L Street N.W., Washington, D.C.

**RESERVATIONS:** Call Mike Smith, Workshop Coordinator, 202-523-5235 or Gwendolyn Henderson, Assistant Coordinator, 202-523-5234.

\*Note: The November 16 briefing will feature an interpreter for hearing impaired persons. For further information contact Melanie Yager Williams on the TTY number at the Office of the Federal Register: 202-523-5239.

**DALLAS, TEXAS**

**WHEN:** December 8, 1979 at 9:30 a.m.

**WHERE:** Dunfey Dallas Hotel  
3800 West Northwest Highway  
Dallas, Texas

**RESERVATIONS:** Call Mary Peters (214) 445-0855

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**Part X**

**Department of  
Housing and Urban  
Development**

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Office of the Assistant Secretary for  
Policy Development and Research

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**Draft Rehabilitation Guidelines**

# DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

## Office of the Assistant Secretary for Policy Development and Research

[Docket No. N-79-957]

### Draft Rehabilitation Guidelines

**AGENCY:** Department of Housing and Urban Development.

**ACTION:** Notice of Draft Rehabilitation Guidelines.

**SUMMARY:** HUD is inviting public comment on the draft rehabilitation guidelines developed for the voluntary adoption by States and communities to be used in conjunction with existing building codes by State and local officials in the inspection and approval of rehabilitated properties. Based on public comment received, HUD will revise the draft rehabilitation guidelines as required and publish the final rehabilitation guidelines not later than April 30, 1980. HUD is also seeking comment and recommendations on other areas where rehabilitation guidelines should be developed, areas where research should be undertaken and other comment and suggestions that would minimize the adverse impact of new construction oriented building codes on rehabilitation projects.

**FOR FURTHER INFORMATION CONTACT:** Robert J. Kapsch, Program Manager, Division of Energy, Building Technology and Standards, Room 8164, Department of Housing and Urban Development, Washington, D.C. 20410, Telephone (202) 755-8154.

**DATE:** Public comment on the draft rehabilitation guidelines are due by December 31, 1979. Comment should be submitted to Mr. Robert J. Kapsch, at the above address.

**SUPPLEMENTARY INFORMATION:** The rehabilitation guidelines were developed in response to Section 903 of the Housing and Community Development Amendments of 1978 (Pub. L. 95-557) which states: "The Secretary (of HUD) shall develop model rehabilitation guidelines for the voluntary adoption by States and communities to be used in conjunction with existing building codes by State and local officials in the inspection and approval of rehabilitated properties."

For a number of years it has been known that new-construction oriented building codes impact and impede rehabilitation projects. For example, in 1968 the National Commission on Urban Problems (the Douglas Commission) in its report to the Congress and the

President recommended, " \* \* \* that Congress authorize the Secretary of Housing and Urban Development to develop model standards to be incorporated in local building codes with special reference to the rehabilitation of existing housing." This recommendation was not acted on by the Congress.

In May 24, 1978, the Senate Committee on Banking, Housing and Urban Affairs (95th Congress, 2nd Session) received testimony from architects, trade associations, building officials and other interested parties to the effect that new construction oriented building codes impede rehabilitation projects in four ways: (1) they add additional, unnecessary project costs (estimated at 10 to 20% of total project costs), (2) they add unnecessary project approval times (in some reported cases), as much as 16 months over comparable new construction projects, (3) they discourage otherwise feasible rehabilitation projects; and (4) they produce an environment which permits and encourages payoffs of building officials.

As a result of this hearing, Senator William Proxmire, Chairman of the Senate Committee on Banking, Housing and Urban Affairs, introduced legislation which, with slight modifications by the Senate-House conferees, became Section 903 of the Housing and Community Development Amendments of 1978 (Pub. L. 95-557).

In his floor statement introducing this amendment, Senator Proxmire stated that, "The purpose of the guidelines is to encourage the rehabilitation and conservation of our older building stock. By making our existing housing stock safe, sound, and functional, we can very significantly aid in achieving our national housing goals, revitalizing our urban areas and reducing Federal expenditures." In introducing this amendment, Senator Proxmire made clear that the rehabilitation guidelines were not to be a Federal rehabilitation code. Said Senator Proxmire, "I do not believe that it is either necessary or desirable for Congress to mandate a Federal rehabilitation code. To do so would preempt the States' authority to regulate the safety and health aspects of buildings. Nor do I believe it desirable at this time to direct HUD to develop a new rehabilitation code. This would be a costly and time-consuming effort that would have little immediate impact." The draft rehabilitation guidelines are not a rehabilitation code but are intended to be used in conjunction with existing building codes.

The Department entered into a cooperative agreement with the

National Institute of Building Sciences (NIBS) for the development of these guidelines. In executing this cooperative agreement, NIBS formed a Policy Steering Committee composed of representatives of various organizations of the building community. Those organizations represented, and the degree of their participation in the development of the rehabilitation guidelines, is detailed in the draft guidelines. In essence, it was the group that decided which of the 55 building code/rehabilitation problems identified should be addressed within the limitations of time and program budget.

The draft rehabilitation guidelines are divided into three volumes: (1) Administrative and Legal Guidelines for Building Rehabilitation, (2) Technical Guidelines for Residential Rehabilitation, (3) Fire Ratings of Archaic Materials and Assemblies. The first volume, Administrative and Legal, includes guidelines for setting and adopting standards for building rehabilitation, guidelines for municipal approval of building rehabilitation, statutory guidelines for building rehabilitation, and guidelines for managing official liability associated with building rehabilitation. An appendix is attached to these guidelines providing provisions adopted in States and municipalities relevant to rehabilitation. The Administrative and Legal Guidelines are intended for use by policy makers and other interested citizens in examining their building regulatory system with respect to the special needs of rehabilitation. The second volume, Technical, include guidelines for egress, for electrical installations and for plumbing drain, waste and venting. These guidelines are intended for architects, contractors, building officials and others who are having specific building code problems with rehabilitation project. The third volume, Fire Ratings, provides technical data no longer available in current regulatory documents. HUD is seeking public comment that would make the guidelines more effective. Comment received will be considered in the revision of these guidelines in final form.

HUD is also very interested in receiving from the public comment on what other actions, besides these guidelines, may be taken to minimize the impact of new construction oriented building codes on rehabilitation projects. HUD is seeking comment and recommendations on other areas where rehabilitation guidelines should be developed, areas where research should be undertaken and other comment and suggestions that would minimize

adverse regulatory impact on rehabilitation projects and yet maintain the safety and health that these buildings provide.

Public comment will be received by the Department until December 31, 1979.

Findings of inapplicability have been found with respect to the environment and regulatory analysis. Copies of these findings are on file in the Office of Regulation, Room 5218, Department of Housing and Urban Development.

Issued at Washington, D.C., October 26, 1979.

Donna E. Shalala,

*Assistant Secretary, Policy Development and Research, Department of Housing and Urban Development.*

[FR Doc. 79-33777 Filed 11-2-79; 8:45 a.m.]

BILLING CODE 4210-01-M

# -Volume 1 Rehabilitation Guidelines

## ADMINISTRATIVE AND LEGAL GUIDELINES FOR BUILDING REHABILITATION

### FOREWORD

Section 903 of the Housing and Community Development Amendments of 1978 (Public Law 95-557, enacted October 31, 1978) requires that the Secretary of the Department of Housing and Urban Development:

*"develop model rehabilitation guidelines for the voluntary adoption by States and communities to be used in conjunction with existing building codes by State and local officials in the inspection and approval of rehabilitated properties."*

Section 903 of the Amendments was predicated in part by the March 24, 1978 hearing on the "Impact of Building Codes on Housing Rehabilitation," held by the Senate Committee on Banking, Housing, and Urban Affairs. The hearing highlighted the many code-related problems that arise during the rehabilitation of the nation's existing building stock. Hearing testimony indicated that a significant cause of these problems was that existing codes and code enforcement techniques are primarily designed for new construction, and contain neither the administrative, legal, or technical mechanisms to properly deal with rehabilitation. This has led to:

- increased rehabilitation costs
- discouragement of otherwise feasible rehabilitation projects
- time delays due to lengthy municipal approval requirements
- encouragement of illegal activities by persons seeking to avoid unreasonable code requirements

Section 903 of the Amendments also requires that the Secretary of the Department of Housing and Urban Development shall:

*"publish such guidelines for public comment not later than one year after the enactment of this section, and promulgate them no later than eighteen months after such date of enactment."*

Accordingly, the following draft documents have been prepared for public comment:

- Rehabilitation Guidelines, Volume 1  
Administrative and Legal Guidelines for Building Rehabilitation
- Rehabilitation Guidelines, Volume 2  
Technical Guidelines for Residential Rehabilitation
- Rehabilitation Guidelines, Volume 3  
Guideline on Fire Ratings of Archaic Materials and Assemblies

The intent of these guidelines is to reduce, while maintaining essential levels of health and safety, those regulatory requirements that create unnecessary constraints, time delays, and higher costs for building rehabilitation.

Volume 1, Administrative and Legal Guidelines for Building Rehabilitation, is designed for use by building officials, members of the legislative and executive branches of State and local governments, and related commissions and organizations that are involved in developing or implementing building regulations. Volume 1 covers the following topics:

- The Guideline for Setting and Adopting Standards for Building Rehabilitation provides an introduction and background to the building regulations that affect rehabilitation. It shows methods for identifying existing regulatory conditions in a community and lists recommendations for amending or modifying the community's regulatory system to encourage rehabilitation.
  - The Guideline for Municipal Approval of Building Rehabilitation outlines a model submittal, review, and approval process for rehabilitation that is recommended for adoption by municipal building departments.
  - The Statutory Guideline for Building Rehabilitation provides recommendations for statutorily modifying existing code decision making systems with the express goal of promoting rehabilitation.
  - The Guideline for Managing Official Liability Associated with Building Rehabilitation addresses the liability of code officials involved with the regulation and enforcement of building rehabilitation, and provides recommendations for minimizing liability problems.
- Volume 2, Technical Guidelines for Residential Rehabilitation, is intended for use by code inspectors, designers, and builders involved in residential rehabilitation. Volume 2 covers the following topics:
- The Egress Guideline for Residential Rehabilitation lists design alternatives for the components of egress that are regulated by current codes: number of exits, corridors and stairs, arrangement of exits, travel distance, dead-end travel, and exit capacity and width.
  - The Electrical Guideline for Residential Rehabilitation discusses the establishment of standards for electrical rehabilitation, gives procedures for conducting inspections of electrical systems, and presents problems and solutions associated with electrical rehabilitation.
  - The Plumbing/DHV Guideline for Residential Rehabilitation includes a background discussion of basic drainage and hydraulic concepts, followed by criteria to determine the condition and capacity of

## TABLE OF CONTENTS

Chapter 1. Guideline for Setting and Adopting Standards for Building Rehabilitation.....	1
Part I. Introduction and Background.....	1
Purpose of the Guideline and Intended Users	1
Introduction to the Regulation of Building Rehabilitation:	1
State-of-the-Art.....	1
A. Building Regulations.....	1
B. Implication of Current Regulations for Building Rehabilitation.....	1
C. Historic Preservation Waiver Clauses.....	1
D. Some Current Regulatory Innovations Related to Building Rehabilitation.....	1
Part II. Identifying Existing Conditions in a Community	1
A. Define Existing Regulatory System.....	1
B. Define Pertinent Characteristics of Building Rehabilitation in the Community.....	1
C. Identify Potential Problems.....	1
Part III. Recommendations for Amending or Modifying the Regulatory System to Encourage Rehabilitation	1
Chapter 2. Guideline for Municipal Approval of Building Rehabilitation.....	1
Introduction and Use.....	1
Model Submittal, Review, and Approval Process for Rehabilitation.....	1
Chapter 3. Statutory Guideline for Building Rehabilitation	1
Introduction.....	1
Code Decision Making Functions.....	1
Recommendations.....	1
Chapter 4. Guideline for Managing Official Liability Associated with Building Rehabilitation	1
Introduction.....	1
Problems and Recommendations	1
Table of Appendices	1

existing DWV (drainage, waste, and vent) systems. Methods and criteria are presented for relocating fixtures, adding new fixtures to existing DWV systems, extending existing DWV systems, and installing new DWV systems in existing buildings. Through-the-wall venting is also discussed.

Volume 3, Fire Ratings of Archaic Materials and Assemblies, is intended for use by code officials and designers in determining the fire ratings of building materials and assemblies that are no longer listed in current building codes or related reference standards. Extensive entries are provided for the fire ratings of walls, columns, floors and ceilings. Introductory material discusses flame spread, the effects of penetrations, and methods for determining the ratings of assemblies not listed in the guideline.

The draft rehabilitation guidelines were prepared by the National Institute of Building Sciences under contract to the Department of Housing and Urban Development. Issues addressed in the guidelines were selected from a March, 1978 study by the Institute entitled "Code-Related Rehabilitation Problems: Problem Identification/Verification/Feasibility Report," which identified approximately fifty code-related problems and determined that eighteen of these problems were feasible to address within the state-of-the-arts and within the legislated time constraints. Actual problem selection was made by a committee formed by the Institute under the legislative mandate that:

*"such guidelines shall be developed in consultation with.....appropriate national organizations of agencies and officials of State and local governments, representatives of the building industry, and consumer groups, and other interested parties."*

The committee formed by the Institute was composed of representatives of the following organizations:

- Council of American Building Officials
- National Conference of States on Building Codes and Standards
- National Fire Protection Association
- American Institute of Architects
- Building Code Action
- National Home Improvement Council
- National Housing Rehabilitation Association
- National Association of Home Builders
- AFL-CIO Building and Construction Trades Department
- Association of Major City Building Officials
- U.S. Conference of Mayors
- National League of Cities
- National Trust for Historic Preservation
- U.S. League of Savings Associations
- National Association of Housing and Redevelopment Officials
- Major subcontractors used by the Institute for addressing the selected problems included:
  - Building Technology, Inc.
  - Joseph Stein
  - Davidson Laboratory, Stevens Institute of Technology
  - Council of American Building Officials
  - J. Bradford Corporation
  - National Fire Protection Association
  - Arthur D. Little, Inc.
  - National Conference of States on Building Codes and Standards
  - Vincent Brannigan, Esq.

## CHAPTER 1

GUIDELINE FOR SETTING AND ADOPTING STANDARDSFORBUILDING REHABILITATION

## PART I

INTRODUCTION AND BACKGROUND

\*\*\*\*\*

PURPOSE OF THE GUIDELINES AND INTENDED USERSPURPOSE

This guideline is intended to serve the following purposes:

- (1) To present a method for describing and analyzing the existing regulatory system affecting all buildings (existing and new) in a community. This method includes identification of all pertinent codes and regulations, as well as all departments involved in their enforcement.
- (2) To present a method for assessing the impact of standards set by the existing regulatory system on building rehabilitation in the community, and for identifying problems and constraints for rehabilitation.
- (3) To recommend methods for amending or modifying the existing regulatory system so as to establish and enforce standards which encourage rehabilitation.

INTENDED USERS

The following groups or individuals may use this Guideline:

- (1) Citizen groups (voluntary or appointed) who wish to assess the impact of the building regulatory system on rehabilitation in their community.
- (2) Policymakers in city government (mayor, council, city manager, community development director, etc.) who wish to assess the impact of the existing building regulatory system on rehabilitation, and/or to amend or modify it in order to encourage rehabilitation.
- (3) Code enforcement department heads (building officials) who wish to assess the need for amendment or modification of the existing building regulatory system in order to encourage rehabilitation.

INTRODUCTION TO THE REGULATION OF BUILDING REHABILITATION:  
STATE-OF-THE-ARTA. BUILDING REGULATIONS

In order to adapt or modify a jurisdiction's existing building regulatory system so as to promote rehabilitation, particular residential rehabilitation, or in order to minimize the constraints which that system may impose on rehabilitation projects, it is first necessary to understand the building regulatory system in general terms and how that system regulates existing buildings.

A. 1 HOW THE BUILDING CONSTRUCTION AND MAINTENANCE REGULATORY SYSTEM REGULATES EXISTING BUILDINGS

Communities or other jurisdictions (e.g., states) currently regulate new and existing buildings by one or more of the following five types of regulations:

- Hazard abatement codes
- Past building codes
- Retroactive laws and regulations

(1) Construction Codes

Construction codes are generally referred to as "Building Codes". Actually they include a building code (regulating structural, fire, accident and health safety aspects of buildings), electrical code, a plumbing code, a mechanical code and a variety of specialty codes such as a boiler code, and an elevator code.

The objective of these codes is to provide certain levels of safety, health, welfare and property protection for building occupants and for the general public. To accomplish this they regulate design, construction, repairs, use, maintenance, moving, and demolition of buildings, or portions thereof.

Building codes often provide two approaches to compliance: prescriptive and performance. The relevance of this distinction to rehabilitation will be discussed later. Codes prescribe acceptable materials, sizes and methods for construction. However, most



modern building codes also provide a performance approach by providing for the acceptance of alternate materials and methods of construction. The following sections of the Uniform Building Code (UBC), Standard Building Code (SBC), Basic Building Code (BBC) and National Building Code (NBC) define this approach:

UNIFORM BUILDING CODE - 1979 Edition

"Alternate Materials and Methods of Construction"

"Sec. 105. The provisions of this code are not intended to prevent the use of any material or method of construction not specifically prescribed by this code, provided any alternate has been approved and its use authorized by the building official."

"The building official may approve any such alternate, provided he finds that the proposed design is satisfactory and complies with the provisions of this code and that the material, method or work offered is, for the purpose intended, at least equivalent of that prescribed in this code in suitability, strength, effectiveness, fire resistance, durability, safety and sanitation."

"The building official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding its use. The details of any action granting approval of an alternate shall be recorded and entered in the files of the code enforcement agency."

STANDARD BUILDING CODE - 1979 Edition

"103.6 Alternate Materials and Alternate Methods of Construction"

"The provisions of this code are not intended to prevent the use of any material, or method of construction not specifically prescribed by this code, provided any such alternate has been approved and its use authorized by the Building Official. The Building Official shall approve any such alternate, provided he finds that the proposed design is satisfactory and complies with the provisions

of Chapter XII, and that the material, method of work offered is, for the purpose intended, at least the equivalent of that prescribed in the code of quality, strength, effectiveness, fire-resistance, durability, and safety. The Building Official shall require that sufficient evidence or proof be submitted to substantiate any claim that may be made regarding its use. If, in the opinion of the Building Official, the evidence and proof are not sufficient to justify approval, the applicant may refer the entire matter to the Board of Adjustments and Appeals as stipulated in Section 111."

THE BOCA BASIC BUILDING CODE - 1978

"109.4 Alternate Materials and Equipment:"

"The provisions of this code are not intended to prevent the use of any material or method of construction not specifically prescribed by this code, provided any such alternate has been approved. The building official may approve any such alternate provided he finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method of work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire-resistance, durability and safety."

NATIONAL BUILDING CODE - 1976

"100.7 Materials and Methods of Construction"

"Nothing in this Code shall be construed to prevent the use of any material or method of construction whether or not specifically provided for in this Code, if upon presentation of plans, methods of analysis, test data or other necessary information, to the building official by the interested person or persons, the building official is satisfied that the proposed material or method of construction complies with specific provisions of or conforms to the intent of this Code."

Such provisions provide local officials with a significant potential for flexibility, which can be used to encourage building conservation, rehabilitation and reuse, or to

- Elimination of references to materials and methods of construction no longer used in modern construction (i. e., "archaic" materials and methods).
- Addition of reference to new materials and methods of construction.
- Addition of new requirements.
- Modification of administrative provisions.

It is often stated that, in general, the updating of codes represents a constant increase in the specified levels of safety, health, welfare and property protection. While this statement is in need of proof, it is clear that building codes change periodically in response to changing technology, new materials and products, and the changing needs of building occupants and the community at large, and that a building constructed to a past building code is not likely to meet all provisions of the current code.

Building codes regulate building rehabilitation and reuse in several ways, which are discussed in Section B. of this part.

## (2) Property Maintenance/Housing/Health Codes

The basis for adopting property maintenance codes is contained in the building codes. The three model building codes, and nearly all other modern building codes, contain sections which require that all buildings, both existing and new, be maintained in a safe and sanitary condition.

It is apparent that building codes requiring maintenance and repair allow repairs to be made in a manner consistent with the original construction system. Where materials are no longer available (wood lath for example) a modern-day counterpart can be used.

Maintenance essentially means that the structural, fire, and health and safety features of a building be maintained at levels comparable to those existing at the time the building was constructed.

Communities may regulate existing buildings by means of property maintenance codes. Most widely used of these are housing (or health) codes. Housing codes have traditionally been used for establishing minimum

reduce constraints thereto, when existing buildings cannot easily comply with the prescriptive requirements of the codes. Traditionally, however, the "alternate materials and methods" approach has been used for approval of new products where the basis for acceptance is reasonably clear. It has been used to a much lesser degree for the acceptance of alternate design methods for meeting the intent of the code which is often the problem in building rehabilitation. There are two reasons for this: First, there is no general agreement on what is covered by the terms "materials and methods of construction." For example, some interpret these to include dimensions specified in the code (e.g., stair widths), while others consider such specifications as "design specifications" to be excluded from "materials and methods." Second, the codes lack a clear "code intent statement" of the several building attributes regulated (e.g., structural safety, fire safety, accident safety, health and hygiene).

Building codes often give the enforcement official authority to modify code provisions in individual instances, when practical difficulties in full compliance are involved. While this modification authority provides the official with opportunity to exercise judgement, it is too exceptional to be considered as a general vehicle for the encouragement of building conservation, rehabilitation and reuse.

Construction codes may be adopted at the state or the local level, depending on state law. The various specialty codes (building, electrical, plumbing, etc.) may be enforced by one agency or by various agencies of government. These options may have significant impact on building regulation in general, and on building conservation, rehabilitation and reuse in particular.

The enforcement of provisions of construction codes is usually triggered by an application for a permit (building, electrical, plumbing) to construct.

Construction codes are periodically updated. The model codes, which are adopted by many jurisdictions, are updated and republished every three years, with amendments published periodically between each new edition. The updating of codes involves four types of code modification:

existing residential and/or other buildings, these codes may be employed to encourage building conservation, rehabilitation and reuse.

### (3) Hazard Abatement Codes

Codes for the Abatement of Dangerous Buildings, or similarly titled documents, provide a basis for measuring or evaluating the condition of an existing building. These codes very carefully provide for due process ensuring that the enforcing body acts legally when it deems a building to be dangerous and requires its repair, evacuation, or demolition.

The International Conference of Building Officials (IBCO) and the Southern Building Code Congress International (SBCCI) each publish a code for the Abatement of Dangerous Buildings.

Building Officials and Code Administrators International (BOCA) includes similar provisions within the Basic Building Code.

These codes include fairly easily implemented provisions for structural analysis, and give specific limits for material stresses. The requirements for the fire safety, accident and health generally refer back to the code under which the building was built, and address how the required building safety elements are currently operating and are maintained. These requirements are stated in general performance language.

Hazard abatement codes have traditionally been used as the means to secure demolition of buildings. Their enforcement is usually triggered by complaints, inspections or any other actions which bring the potential hazard to the attention of the authorities.

These codes establish levels of safety and health which are lower than those established in building codes for new construction. It may be implied that these levels are also lower than those of property maintenance codes.

Implied in all building regulations, and in hazard abatement codes, is the concept of "imminent hazard." This is the absolute lowest level a building can reach. The discovery of an "imminent hazard" in a

levels of health in existing residential occupancies (one and two family dwellings, apartments and hotels). Property maintenance codes contain the requirements of the housing code plus requirements applicable to other occupancies. Housing codes contain many specific requirements, while property maintenance codes tend to be more performance based (containing general statements of objectives).

Fire prevention codes are also a form of property maintenance code. They are intended to control the fire hazards in buildings by proper operation and maintenance procedures.

Housing codes and fire prevention codes are adopted either by the state or local government. They are often enforced by a different agency from that charged with enforcing the building code. The enforcement of these codes is usually triggered by complaints and by routine periodic inspections (the latter often concentrating on selected occupancies or selected neighborhoods). In some communities, the enforcement of these codes may also be triggered by periodic license or permit requirements (e.g., business license, fire marshal's permit, etc.). It is likely that in many communities there is a significant number of buildings which do not comply with the housing and/or fire prevention codes, due to the limitations on resources available for routine inspection of all buildings. Often, housing code enforcement is done by persons with special sensitivity to the needs of residents--a feature which may be of potential benefit for the encouragement of building conservation, rehabilitation and reuse.

General property maintenance codes are most often adopted by local government, since they are applicable to any occupancy. However, their adoption is not widespread.

Housing codes and property maintenance codes cover many of the same aspects of buildings addressed in new construction codes. For these same aspects, however, they usually establish levels of health, safety and welfare which are lower than the respective levels established by the new construction codes. The actual levels established by the maintenance codes are not usually stated explicitly, due to the general language of these codes.

The enforcement of housing and property maintenance codes often became the basis for mandatory repairs (see Section B below) in existing buildings. However, by providing a baseline level of health and safety for

Group R. Division 1 occupancies (hotels, apartment houses, convents and monasteries) more than two stories in height.

In all cases, existing buildings covered by the retroactive regulations are required to be modified to conform to the new minimum provisions. The levels of health, safety, welfare and/or property protection required by such retroactive regulations may be the same as, or lower than, the respective levels required by codes for new construction.

The enforcement of a retroactive regulation is triggered by inspections called for by the regulations itself. Often the enforcement is constrained by the community's available resources, in which case the community may establish a schedule for enforcement based on neighborhood location, type of building or other factors.

#### A. 2 CONTINUED USE AND OCCUPANCY--BUILDING CODES AND EXISTING BUILDINGS

Building codes traditionally permit the continued use and occupancy of buildings in existence at the time of the adoption of the code. This is often referred to as the "non-conforming rights" of existing buildings. Section 104(c) of the 1979 edition of the Uniform Building Code is a case in point:

*"Buildings in existence at the time of the adoption of this code may have their existing use or occupancy continued, if such use or occupancy was legal at the time of the adoption of this code, provided such continued use is not dangerous to life."*

A similar section contained in the 1978 edition of the Basic Building Code reads as follows:

*"The legal use and occupancy of any structure existing on \_\_\_\_\_ (date of adoption of this code) or for which it has been heretofore approved, may be continued without change, except as may be specifically covered in this code and the housing code or as may be deemed necessary by the building official for the general safety and welfare of the occupants and the public."*

building will justify drastic enforcement without permitting any delay in correction. While not specifically defined in the codes, a guideline for determining "imminent hazard" is included in Part III of this Guideline.

#### (4) Past Building Codes

As discussed earlier, the implication contained in all building codes and property maintenance codes is that the minimum requirement for an existing building is that the building, and any required safety equipment and devices, be maintained to the level required by the code under which the building had been constructed. As discussed earlier, these past codes establish levels of health, safety, welfare and property protection which are different from, and are usually lower than, those of current new construction codes.

#### (5) Retroactive Laws/Regulations<sup>1</sup>

In some cases States or local governments have declared certain building features unsafe, or otherwise undesirable, and have required that all buildings of a certain occupancy or class be altered to remove the unsafe or undesirable condition, or to install some specific feature making the building appropriately safe or desirable.

Examples of such retroactive regulations are:

- High-Rise Requirements Adopted by the California State Fire Marshal (Appendix 1).
- City of Los Angeles Stairway Enclosure Requirements for Hotels, Apartments and Similar Residential Buildings Exceeding Two Stories in Height (Appendix 2).
- City of Los Angeles Preliminary Draft of "Earthquake Hazard Reduction in Existing Buildings," currently being considered for adoption (Appendix 3). This draft deals potentially with all building occupancies, reclassifying them into four hazard classifications.
- Appendix Chapter 12 of the 1979 Uniform Building Code, "Existing Buildings" (Appendix 4). This chapter is applicable to existing nonconforming

Similar code sections occur in other modern building codes used throughout the United States. Accordingly, in order to mandate that an existing building be repaired or brought up to some minimum condition of safety, one of three possibilities exists:

- establish that a building is dangerous in accordance with a hazard abatement code or similar regulation;
- enforce a property maintenance code; or
- enforce a retroactive law or provision.

#### A.3 LEVELS OF HEALTH, SAFETY, WELFARE AND PROPERTY PROTECTION

The preceding discussion has alluded to the various levels of health, safety, welfare and property protection implied by the various codes and regulations being discussed--with new construction codes defining the highest, and hazard abatement codes defining the lowest. It may be useful for communities considering setting or adopting standards for building rehabilitation to formalize this concept of levels of performance required by the various codes and regulations.

For each major objective of codes--health, safety, welfare, and property protection--one can conceive of a scale of performance. New construction code requirements may be thought of as defining the upper limits of such a scale; hazard abatement codes may be thought of as defining the lower limits of such a scale (with "imminent hazards" being specific points below or at the lower limit). Property maintenance codes and past building codes may be viewed as occupying given points between those limits. This concept is shown in diagram 1 (next page).

An existing building may be thought of as embodying levels of health, safety, welfare and property protection anywhere between these limits or above the upper limit. Retroactive laws and regulations may mandate the upgrading of such a building to some specified level (with regard to a specific code objective or attribute). However, when such a building is rehabilitated, the existing set of regulations, as discussed earlier, will explicitly or implicitly require that building to reach a specified new level. The following section of this Part (Section B) discusses how this new level of performance is currently specified by building regulations.

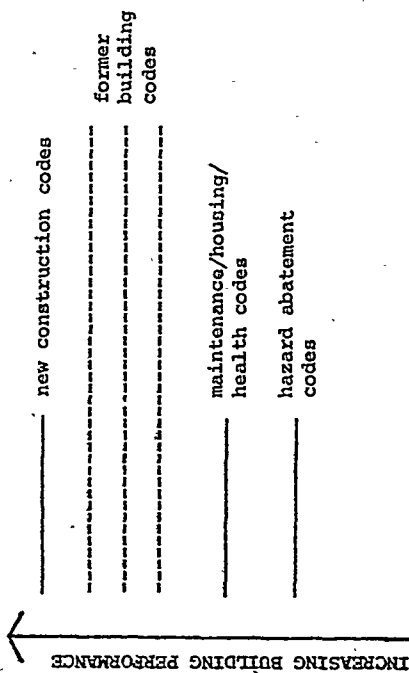


Diagram 1. Conceptual Diagram of Various Levels of Building Performance Imposed by Various Types of Building Regulations

While this concept of "levels" may be useful in considering building rehabilitation, it should be kept in mind that it may not be possible to actually quantify or measure a given level, or the difference between levels (e.g., gross potential of current codes and older codes). Finally, for every level which is specified by a set of code requirements, the "alternative materials and methods" provision of modern building codes (as discussed earlier) recognizes that a given level can be achieved by alternatives to compliance with the code requirements. Such alternatives achieve equivalent performance. It is essential to make a clear distinction between equivalent performance (achieved by alternative means) and reduced performance.

## B. IMPLICATION OF CURRENT REGULATIONS FOR BUILDING REHABILITATION

### B.1 CURRENT REGULATIONS AND BUILDING REHABILITATION

In general, building codes address building rehabilitation in two categories:

- Maintenance, alteration and repair of existing buildings not involving a change of use or a change of occupancy.
- Change of use or occupancy in existing buildings.

#### (1) No Change of Use or Occupancy (25-50% Rule)

Rehabilitation work involving no change of use or occupancy can be qualified into two distinct categories:

- Voluntary maintenance, alterations or repairs (modernization, upgrading, etc.).
- Mandatory maintenance, alterations or repairs.

Voluntary repairs or maintenance of a building and its facilities involves work which is to conform to the code under which the building was initially constructed. The idea and action are voluntary. Rehabilitation work in this category is in general included in the building's non-conforming rights under the building code, although it may trigger a host of violations considered hazardous which are unrelated to the voluntary work.

It may also trigger degrees of compliance with new construction codes through the 25-50% Rule to be discussed below. Whatever requirements are imposed, their enforcement is triggered, in this case, by an application for a construction permit (building, electrical, plumbing, etc.).

Mandatory repair or maintenance results in a building and its facilities being required to conform to a level of safety as defined by law (codes for the abatement of dangerous buildings, property maintenance codes, housing codes, and/or specific retroactive provisions). The applicant may be given a period of time to comply. The idea and action are mandatory. Rehabilitation work in this category may trigger degrees of compliance with new construction codes through the 25-50% Rule.

Commonly, building codes control rehabilitation with no change of use by means of the 25-50% Rule.

According to research done by the National Conference of States on Building Codes and Standards (NCSBCS), the 25-50% Rule first appeared in building codes as part of provisions dealing with fire districts and was applied to buildings which were non-conforming within the fire district. As population and usage density increased in urban areas and several fire disasters occurred, communities became increasingly aware of the danger of fire literally consuming whole areas of a city where many buildings were of wood frame construction. The criterion of 50% of value was used to require demolition, or replacement of frame exterior walls with conforming construction. In other words, the original purpose of the rule was to prevent rehabilitation of certain classes of buildings.

The actual wording of the 25-50% Rule in the four model codes is contained in the following sections:

- Basic Building Code, Section 106.0
- Standard Building Code, Section 101.4
- Uniform Building Code, Section 104
- National Building Code, Section 104.3

In the 1979 edition of UBC, Section 104 has been revised to drop all references to cost of rehabilitation. For the purposes of the following discussion, reference to the UBC version will be to the 1976 edition, since many jurisdictions are still using this edition. There are certain similarities and differences among the four versions which should be noted.

#### a. Over 50%

The BOCA Basic Building Code (BBC), the SBCCI Standard Building Code (SBC), and the ICBO Uniform Building Code (UBC) all contain the basic 25-50% Rule. The American Insurance Association (AIA) National Building Code (NBC) contains reference only to restoration if cost exceeds 50%. All four of the codes are consistent in requiring that the entire building

that the entire building not exceed areas and heights specified by the code. Non-structural alterations and repairs can be made with like materials provided they do not affect any member or part of the structure having required fire resistance.

Jurisdictions that use the 25-50% Rule at times vary the terms from those in the model codes. Two examples are Los Angeles and Phoenix.

Los Angeles Department of Building and Safety Conservation Bureau Bulletin No. 32 states:

*"Repair 'in kind' is permitted outside a fire zone in an amount of 50% of the replacement value of the building during a two-year period. In a fire zone, repair 'in kind' is permitted if the value of the work done in any one year is not in excess of 10% of the replacement value of the building."*

*A building is permitted to be 'non-conforming' in part or totally if the value of the required repairs does not exceed 50% of the replacement value of the building."*

The City of Phoenix, Arizona reported the following information:

If Cost of Repair is:

- 0-10% - Replace with like material
- 10-50% - New work must meet code
- Over 50% - Entire building must meet code

In summary, the 25-50% Rule requires the upgrading of existing buildings to the performance levels required for new construction if work exceeds 50%, and allows various lower levels to continue to exist in buildings when lesser work is involved. It should be noted that the "alternate materials and methods" provisions of building codes, while generally applicable to all provisions of building codes, while generally applicable to all provisions of the codes, is not explicitly referenced in relation to compliance with the 25-50% Rule.

be brought into compliance with current code requirements if the work exceeds 50% of the value of the building. The NBC apparently does not administratively address the issue if restoration costs are below 50% of value. Hence, the balance of this discussion is primarily directed to the three remaining models.

Both the BBC and SBC state that the physical value of the building will be determined by the building official. The BBC also states the value will be based on replacement cost.

All three models indicate that the rule applies only if the alteration or repairs are made within a 12-month period.

BBC and SBC differentiate between alterations exceeding 50% and repair of damages exceeding 50%. The 12-month period does not apply to a building damaged in excess of 50% in value.

b. Between 25-50%

Where the cost is between 25 and 50% of value, both BBC and SBC specify that the extent to which the portion of the building altered or repaired conforms to new construction requirements is left to the discretion of the building official. The UBC merely states that the addition, alteration or repair be made in conformance with the current code, provided that the entire building not exceed areas and heights specified by the code.

c. Under 25%

Where the cost of the alteration is under 25%, BBC and SBC essentially allow restoration with like materials with caveats that the public safety is not endangered or a non-conforming or hazardous use is not extended.

In the under 25% category, the UBC distinguishes between structural and non-structural alterations. For structural alterations, the changes must conform to new code requirements, unless they are minor, in which case the building official may approve replacement with like materials, provided

The 25-50% Rule has been the target of much criticism with regard to its effects on building conservation, rehabilitation and reuse. This criticism is underlined by the fact that originally the Rule was not intended to deal with rehabilitation. The drawback of the 25-50% Rule is that it is arbitrary, and it may unintentionally or by default, force a rehabilitated building into complete new construction code compliance, when the 50% is exceeded. Furthermore, the 25-50% Rule has an adverse effect on the rehabilitation of buildings of a low value, and may discriminate between similar buildings located in different real estate markets.

In terms of the conceptual diagram of performance levels discussed in A.3 above, the 25-50% Rule requires rehabilitated buildings to be upgraded to three potentially different levels of performance.

While the 25-50% Rule is likely to be eliminated from all the model codes in the foreseeable future, it should be noted, however, that when used in close conjunction with the "alternate materials and methods" provision, and when applied to the lower range of values, the Rule is often seen as a flexible tool for the encouragement of rehabilitation, by explicitly extending the building's non-conforming rights. As such, it will be discussed later in this Guideline.

As stated previously, ICBO has eliminated the 25-50% Rule from the 1979 edition of the UBC and substituted the following wording:

#### Application to Existing Buildings and Structures

Sec. 104. (a) General. Buildings and structures to which additions, alterations or repairs are made shall comply with the requirements of this code for new facilities except as specifically provided in this section. See Section 1211 for provisions requiring installation of smoke detectors in existing Group R, Division 3 Occupancies.

(b) Additions, Alterations or Repairs. Additions, alterations or repairs may be made to any building or structure without requiring the existing building or structure to comply with all the requirements of this code provided the addition, alterations or repair conforms to that required

for a new building or structure. Additions, alterations or repairs shall not cause an existing building or structure to become unsafe or overloaded. Any building so altered, which involves a change in use or occupancy, shall not exceed the height, number of stories or area permitted for new buildings. Any building plus new additions shall not exceed the height, number of stories and area specified for new buildings.

Alterations or repairs to an existing building or structure which are nonstructural and do not adversely affect any structural member or any part of the building or structure having required fire resistance may be made with the same materials of which the building or structure is constructed.

Exception: The installation or replacement of glass shall be as required for new installation.

BOCA intends to place a similar proposal before its membership at the January, 1980 Code Change Meeting.

In essence, the 1979 UBC Section 104(b) now requires that for additions, alterations, or repairs:

- new work must conform to the code,
- work shall not cause existing buildings to become unsafe or overloaded,
- altered buildings involving change in use or occupancy, and buildings undergoing addition, shall not exceed height and area required for new buildings, and
- non-structural work not adversely affecting a structural member or any part having required fire resistance may be done with same materials.

As compared to the former Sections 104(b) through 104(e) (25-50% Rule), the new section appears to accomplish the following:

- any amount of non-structural work can now be done with like materials, as compared to only if cost was 25% or less under prior rule,



- any new structural work must be in conformance with current code (constitutes no change from prior rule in the 0-50% bracket),
- with the caveats noted regarding overloading and height and area restrictions, the existing structure can remain without being brought up to new code requirements.

This UBC substitution for the 25-50% Rule requires the upgrading of rehabilitated buildings to a performance level somewhat lower than that required for new construction, while requiring new construction performance for specifically defined aspects.

#### (2) Change of Use or Occupancy

Building codes address change of use or occupancy in existing buildings by considering that such a change may introduce new or greater hazards and by requiring a careful reexamination to determine that the building will be safe for the new occupancy.

The three model building codes require, generally, that where a change in occupancy occurs, the building must be made to comply with the requirements of the current building code for the new occupancy. The model codes state this in various ways.

The 1978 BOCA Basic Building Code addresses changing use in three sections.

##### Section 105.2 Change in use:

*"It shall be unlawful to make any change in the use or occupancy of any structure which would subject it to any special provision of this code without approval of the building official, and his certification that such structure meets the intent of the provisions of law governing building construction with a proposed new use in occupancy, and that such change does not result in any greater hazard to public safety or welfare."*

##### Section 119.2 Buildings hereafter altered:

*"A building or structure hereafter enlarged, extended or altered to change from one use group to another or to a different use within the same use group, in whole or in part, and a*

*building or structure hereafter altered for which a certificate of use and occupancy has not been heretofore issued, shall not be occupied or used until the certificate shall have been issued by the building official, certifying that the work has been completed in accordance with the provisions of the approved permit; except that any use or occupancy, which was not discontinued during the work of alteration, shall be discontinued within thirty (30) days after the completion of the alteration unless the required certificate is secured from the building official."*

##### Section 119.4 Changes in use and occupancy:

*"After a change of use has been made in a building or structure, the reestablishment of a prior use that would not have been legal in a new building of the same type of construction is prohibited unless the building complies with all applicable provisions of this code. A change from one prohibited use, for which a permit has been granted, to another prohibited use shall be deemed a violation of this code."*

##### Section 101.4(3) of the 1979 Standard Building Code states:

*"If the occupancy of an existing building is entirely changed the building shall be made to conform to the requirements of this code for the new occupancy. If the occupancy of only a portion of an existing building is changed and that portion is separated from the remainder as stipulated in Section 403, then only such portion need be made to conform."*

##### Section 502 of the 1979 Uniform Building Code states:

*"No change shall be made in the character of occupancies or use of any building which would place the building in a different division of the same group of occupancies, unless the building is made to comply with the requirements of this code for such division or group of occupancy"*

Exception: *The character of the occupancy of existing buildings may be changed subject to the approval of the building official and the*

### B.3 POSSIBILITY OF CONFLICTING GOALS OF REGULATIONS AND REHABILITATION

Building regulations, as discussed earlier, are intended to implement goals of private and public health, safety, welfare and property protection in the occupancy and use of buildings. These goals are usually not explicitly stated by a community. Their achievement through the enforcement of building regulations imposes certain costs on building owners and on society.

Programs of building conservation, rehabilitation and reuse are also initiated by communities in the furtherance of certain goals. These goals may relate to avoiding the reduction of the existing housing stock. Other goals may relate to preventing the deterioration of downtowns or of industrial areas.

It is useful for any community to realize, whether explicitly or implicitly, that its goals underlying rehabilitation may conflict with its goals underlying building regulation. In such a case, the enforcement of building regulation will not support the community's rehabilitation goals. Specifically, current building regulation may force the upgrading of rehabilitated buildings to the levels required for new construction (as discussed above), which may impose an unacceptable cost on rehabilitation and may prevent rehabilitation from taking place.

If a community finds that its regulation and rehabilitation goals are potentially in conflict, it may determine that in the interest of furthering rehabilitation, some reduction in the levels of safety, health, welfare and property protection required of rehabilitated buildings may be acceptable. A community which develops a rehabilitation policy on the basis of such a determination will find the concept of the various levels of performance introduced in A.3 above useful in implementing such a policy. The concept may help the community to set specific standards and requirements for rehabilitation, different from the regulation currently in effect.

Such standards and requirements may imply lower levels of performance than required for new construction, while reflecting acceptable levels of safety for the community.

The following diagram illustrates the levels of performance of a specific existing building, in relation to the performance level required by various regulations in effect.

*building may be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based upon life and fire risk, than the existing use."*

The SBC unambiguously requires compliance with current code provisions. The UBC is similar, but includes the Exception which waives compliance with all current code provisions (i. e., requires compliance with some only). The Exception is in performance language, and the enforcement official must determine whether the proposed use is less hazardous based on life and fire risk than the existing use. The UBC does not define "life and fire risk." A decision must be made whether it was intended to apply to property damage as well as to life safety of the occupants.

The BBC appears to give the enforcement official the greatest leeway (of the three model codes) in determining the extent to which compliance with current code provisions would be required.

In summary, the model codes vary in their requirements for rehabilitation involving a change in use or occupancy. At one extreme they require upgrading to the performance levels of new construction. At the other, they require selective upgrading, based on undefined hazard and risk analyses. Here also, as in the case of the 25-50% Rule, explicit reference to the "alternate materials and methods" provision in cases of change or use or occupancy is not made.

### B.2 "CODE ENFORCEMENT GUIDELINES FOR RESIDENTIAL REHABILITATION", PUBLISHED BY BOCA

The above document, the first edition of which was published in 1975, was developed by BOCA, ICBO, SECCI and AInSA on the basis of research sponsored by the U. S. Department of Housing and Urban Development.

The document is currently published as Appendix B to the 1978 BOCA Basic Property Maintenance Code.

The extent and nature of the application of this document to residential rehabilitation in local communities is not known at this time.

It suggests the potential benefits of establishing specific requirements for building rehabilitation, because in their absence the current 25-50% Rule and change of occupancy provisions often force the building up to the performance levels of the new construction codes.

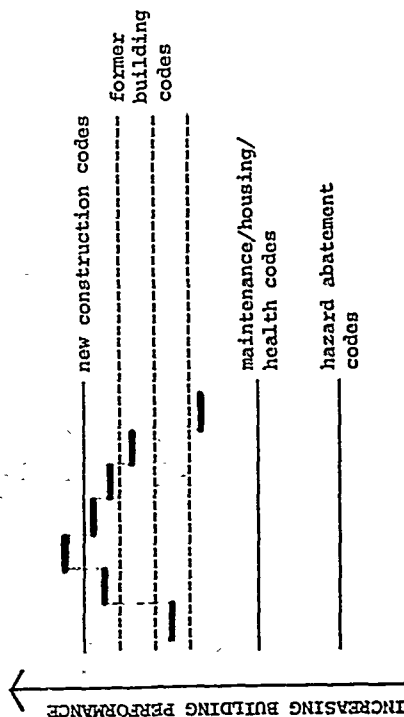


Diagram 2. Conceptual Diagram of the Performance Range of an Existing Building's Various Characteristics Compared to Levels Implied by Building Regulations

#### C. HISTORIC PRESERVATION WAIVER CLAUSES

A discussion of the state-of-the-art of regulation of building rehabilitation would not be complete without mentioning historic preservation. Historic preservation is a specific problem, and in addressing it the building regulatory system has accepted the fact that in achieving the policy goals of historic preservation, some compromise with the health and safety goals of the regulatory system may be required. This compromise has been recognized by the model code groups.

The 1978 BOCA Basic Building Code states:

#### Section 316.0 SPECIAL HISTORIC BUILDINGS AND DISTRICTS

"316.1 Approval: The provisions of this code relating to the construction, repair, alteration, enlargement, restoration and moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state and/or local government authority as historic buildings, subject to the approval of the board of appeals when such buildings are judged by the building official to be safe and in the public's interest of health, safety and welfare regarding any proposed construction, alteration, repair, enlargement, relocation, and location within the fire limits. All such approvals must be based on the applicant's complete submission of professional architectural and engineering plans and specifications bearing the professional seal of the designer."

Section 104.(j) of the 1976 Uniform Building Code states, similarly:

"(j) Historic Buildings. Repairs, alterations and additions necessary for the preservation, restoration, rehabilitation or continued use of a building or structure may be made without conformance to all of the requirements of this Code, when authorized by the Building Official provided:

1. The building or structure has been designated by official action of the legislative body as having special historical or architectural significance.
2. Any unsafe conditions as described in Section 203, will be corrected in accordance with approved plans.
3. Any substandard conditions will be corrected in accordance with approved plans.
4. The restored building or structure will be less hazardous, based on life and fire risk, than the existing building."

Briefly, buildings may be exempted from full code compliance either individually, as a landmark, or collectively

- City of Los Angeles Seismic Regulation in Cases of Change of Occupancy (Appendix 9)
- State of California Seismic Safety Commission Draft Legislation Related to Seismic Hazards (Appendix 10)
- Chapter 10 of the Official Electrical Code of the City of Detroit (Appendix 11)

The examples fall into two categories:

- Comprehensive approaches
- Partial approaches

#### D.1 COMPREHENSIVE APPROACHES

Examples of comprehensive approaches can be found in Washington, D. C.; San Francisco, California; Denver, Colorado; the State of Massachusetts. These approaches are comprehensive because each one of them has developed an innovative regulatory system which addresses all aspects of rehabilitation of buildings in most, or all, occupancies.

##### (1) Washington, D. C.

Washington's code includes neither the 25-50% Rule nor the general change in use regulations. In their place, the code contains prescriptive provisions specifically addressing existing buildings, and specific provisions applied when a change in use occurs. In general, the code requires several levels of performance in increasing order:

- a) Code in effect when building was erected
- b) Retroactive provisions
- c) Provisions concerning alteration or conversion
- d) Provisions for new construction.

The code incorporates a hazard ranking by occupancy type and intensity of use. Conversion is defined as a change to a higher hazard use. Alteration is defined as work which affects egress arrangements or fire resistivity.

in an historic district. The designation as a landmark or as an historic district may be made by local public landmarks/historic district commissions, and may rely to varying degrees on state public historic preservation offices or on listing in the National Register.

Over 600 cities in the United States currently have such exemptions in effect.

#### D. SOME CURRENT REGULATORY INNOVATIONS RELATED TO BUILDING REHABILITATION

Several specific examples of direct approaches to the regulation of building rehabilitation, rather than the building codes' indirect approach through the 25-50% Rule and the change of occupancy regulations are discussed briefly below. Fuller discussions and documentation of each example are included in the Appendices.

All the examples establish a set of requirements applicable to rehabilitation, and each, to varying degrees, reflects a reduction in the total set of requirements applicable to new construction. In other words, each example is a regulatory innovation which addresses the problem of setting standards for rehabilitation, and may be thought of as requiring a level of performance below the upper level implied by codes for new construction (see A.3 above).

Each regulatory innovation is likely to have grown or evolved out of a very specific set of physical and social conditions, and to have been intended to solve specific local problems.

The following examples of regulatory innovation are suggested for consideration; they are not intended to form an exclusive or comprehensive list, and similar regulatory innovations may exist elsewhere:

- Washington, D. C. (Appendix 6)
- San Francisco, California (Appendix 7)
- Denver, Colorado (Appendix 5)
- State of Massachusetts (Appendix 8)

The code provisions were developed over a long period of time, and are based on the approach of allowing certain deviations from the requirements for new construction for existing, altered or converted buildings.

Prescriptive requirements for rehabilitation may be effective in an urban jurisdiction such as Washington, D. C. where a large number of older buildings are known, and pose similar problems for rehabilitation. More prescriptive requirements may be needed to cover the range of rehabilitation problems encountered in jurisdictions with a more varied or diverse building stock.

(2) San Francisco, California

San Francisco's code, like Washington's, includes neither the 25-50% Rule, nor the general change in use regulation. In their place the code contains specific provisions applicable to work on existing buildings. In general, these provisions are:

- a) Enforcement of the housing code, with specific tolerances established by an inspection manual, for all existing housing and housing rehabilitation. This establishes a lower level of performance than required for new construction.
- b) Requirements pertaining to structural alteration work. These may be lower than new construction requirements, except when structural alteration exceeds a specified quantitative limit.
- c) Requirements pertaining to architectural alteration work. These require that only new work meet new construction requirements, except when work exceeds a specified quantity on a floor, in which case floor-by-floor compliance with new construction requirements is required only.
- d) Specific requirements for additions.
- e) Provisions for covering change of occupancy, requiring either full compliance with new construction requirements or two lower levels of compliance, as a function of the specific occupancies involved in the change, and based on relative hazard of the occupancies.

San Francisco's approach is particularly notable for its use of the housing code and its companion inspection manual in rehabilitation of housing. As in the case of Washington, D. C., this approach is effective in an urban jurisdiction where a large number of older buildings are known and pose similar problems for rehabilitation, and, as in San Francisco, where much of this building stock consists of housing.

(3) Denver, Colorado

Unlike Washington and San Francisco, the Denver building code includes both the 25-50% Rule and the general change of occupancy regulation. However, in apparent recognition of the inadequacy of these regulations to support Denver's rehabilitation needs, the City of Denver has enacted a special chapter on "Rehabilitation of Older Buildings" into its building code (Chapter 31). This chapter achieves several results:

- a) It exempts buildings of specific occupancies erected before 1950 from code compliance under the 25-50% Rule and the change of occupancy regulation.
- b) It declares rehabilitation of older buildings to be a public necessity as a matter of policy.
- c) It establishes an administrative mechanism for developing guidelines to be used by the building official in accepting deviations from code requirements in cases where the rehabilitator requests such deviations.

Thus, Denver's regulatory innovation is to explicitly permit deviations from strict code compliance in the case of rehabilitation. It is unclear whether Denver's guidelines imply reduced levels of performance for rehabilitation when compared to new construction requirements, or whether they merely encourage the acceptance of alternative solutions of equivalent performance. Denver's approach is too recent to provide a response to this question.

(4) State of Massachusetts

Until June, 1979, the State building code in Massachusetts included the 25-50% Rule and the general

## D.2 PARTIAL APPROACHES

change of occupancy regulation (the BOCA code version). On that date the State enacted Article 22, representing a regulatory innovation replacing the 25-50% Rule and the change of occupancy regulation.

In general, Article 22, contains the following:

- a) Definition of hazardous conditions, related to structural performance, number of exits and capacity of exits, the elimination of what must be complied with in all existing buildings.
- b) Classification of all occupancies into one of eight hazard classifications, in increasing order of hazard.
- c) Establishment of three levels of required performance for rehabilitated buildings (above the level of hazard elimination noted in (a) above). These levels are a function of the relative change in hazard classification involved in the rehabilitation, and range from a requirement of not reducing the level of performance of the existing building to full compliance with the requirements for new construction.
- d) Explicit encouragement of acceptance of equivalent alternative solutions whenever compliance with new construction requirements is specified.

In summary, the Massachusetts approach is based on the philosophy that the existing building's actual level of performance establishes the level to be complied with in rehabilitation, except for the elimination of a few specified hazards, and except when changing occupancy to one of substantially greater hazard. In other words, the Massachusetts approach to rehabilitation requires compliance with many different potential levels of performance (potentially the number of levels is the number of existing buildings).

There is not yet enough experience to judge the efficacy of this approach, and specifically the efficacy of basing levels of compliance on a single number hazard index of occupancies.

Partial approaches to regulatory innovation related to rehabilitation of existing buildings are those which address a specific problem, be it a single hazard (e.g., seismic loading), a single building component (e.g., electrical system), a single class of buildings (e.g., residential), or any other problem for rehabilitation.

Three examples of partial approaches to regulatory innovation are discussed below and in the appendices.

(1) City of Los Angeles Seismic Regulation in Cases of Change of Occupancy

This regulatory innovation deals only with seismic loads, and illustrates the conscious reduction in requirements applicable to rehabilitation involving a change in occupancy.

The City of Los Angeles has developed a "Rule of General Application" (RGA) to determine when buildings undergoing a change of occupancy or having an increase in the occupant load must be made to conform to current structural requirements. A copy of the rule is included in Appendix 9. A portion of the rule reads as follows:

*"In buildings constructed on or after October 6, 1933, a change in occupancy may be made to establish any occupancy classification provided the building is not substantially altered."*

The October 6, 1933 date was selected since all buildings constructed in the City of Los Angeles subsequent to October 6, 1933 were required to be designed for earthquake forces. This provision is based upon buildings located in areas subject to seismic forces of the magnitude anticipated in Seismic Zone 4. It is recognized that the level of seismic design force would not be as required under the current building code. However, the building should perform in such a manner as to minimize life loss in the event of an earthquake.

This RGA contains a list of occupancies arranged in order from the least hazardous to the most hazardous. An occupancy or use is generally considered more hazardous as the occupant load within the building or the length of time the building is occupied are increased. (An exception to this occurs in category No. 4 which would include retail stores which could contain a considerable number of occupants. It would seem desirable to include retail stores with a considerable number of occupants in category 5 or 6.)

Note that an occupancy hazard listing based on structural performance may not be applicable when fire safety of the occupants is a consideration.

(2) State of California Seismic Safety Commission  
Draft Legislation Related to Seismic Hazards

In areas subject to earthquakes, it is well known that unreinforced masonry buildings which have not been designed for seismic effects may be subject to severe damage in moderate earthquakes. Based upon this fact, the Seismic Safety Commission of the State of California is developing legislation related to buildings which would be a hazard when subjected to the level of seismic forces which could be encountered in the State of California. A draft of the proposed legislation is contained in Appendix 10.

This example of regulatory innovation is a form of a hazard abatement code, and is intended to eliminate the problem of complying with portions of the new construction code in removing a particular hazard.

I. art, the draft states:

*"This bill would authorize a city, city and county, or county to establish construction standards for reconstruction of existing buildings determined, as specified, to be a hazard to life in the event of an earthquake, which standards are as specified in the bill and would eliminate the problem of complying with the latest building code governing new construction when rehabilitating older buildings."*

(3) Chapter 10 of the Official Electrical Code of the City of Detroit, Adopted November 9, 1977  
("Minimum Standards for Existing Dwelling Units")

This Chapter (see Appendix 11) was developed by the City of Detroit and has been proposed for the National Electrical Code. It reflects that city's need to rehabilitate large numbers of single family houses.

Chapter 10 covers the re-wiring of existing inadequately wired dwelling type occupancies. It describes the evidence of inadequacy of wiring, and defines minimum illumination and power requirements for each room or space of the dwelling.

Chapter 10 represents a regulatory innovation because the National Electrical Code does not specifically address existing buildings, and its requirements establish levels of performance for new construction. Chapter 10 establishes lower levels of performance which would be safe and acceptable for existing buildings.

## PART II

IDENTIFYING EXISTING CONDITIONS IN A COMMUNITY

\*\*\*\*\*

The purpose of this Part of the Guideline is to provide policymakers or other interested groups in a community with a procedure for examining the existing conditions in their community to determine what problems, if any, are posed by the existing regulatory system in setting standards for building rehabilitation and re-use. The procedure makes reference to the general introduction and background discussions in PART I of the Guideline, and consists of three steps:

- Define existing regulatory systems.
  - Define pertinent characteristics of building rehabilitation in the community.
  - Identify potential problems.
- With the identification of problems, policymakers can proceed to PART III of the Guideline, in which recommendations for amending the regulatory system designed to solve the respective problems are discussed.

A. DEFINE EXISTING REGULATORY SYSTEM

Buildings in a community may be regulated by means of a variety of regulations, as discussed in Introduction and Background. It is necessary to define how they are regulated in a particular community. In doing so, it will be useful to make use of the conceptual diagrams of required building performance presented in the Introduction and Background.

The definition of the existing regulatory system consists of three parts:

- Define those requirements imposed on all existing buildings, and their enforcement.
- Define new construction requirements and their enforcement.

- Define existing provisions addressing building rehabilitation and reuse.
- Compare criteria levels.

A.1 DEFINE THOSE REQUIREMENTS IMPOSED ON ALL EXISTING BUILDINGS, AND THEIR ENFORCEMENT.

- (1) Hazard Abatement Code
  - (a) Determine whether a code for the abatement of dangerous buildings, or a similarly titled document, is in effect as a hazard abatement code in the community. Note that similar provisions may be part of the building code.
  - (b) If such a code, or provisions, are in effect, determine whether they include explicit criteria for various enforcement options by the authority having jurisdiction. Such criteria may be found in inspection manuals or similar ancillary documents as well as in the regulations themselves. Specifically, determine whether the code contains a workable definition of "imminent hazard," warranting immediate remedial action to be enforced by the authorities. If the criteria are defined by reference to another code (e.g., building code, electrical code, etc.), the explicit criteria should still be identified.
  - (c) Exhibit the criteria for "imminent hazard" and for other hazards covered by the hazard abatement code, in the categories of structural safety, fire safety, health and hygiene, and any further breakdown of these categories as appropriate.
  - (d) Determine how the hazard abatement code is enforced, and by what agency. Specify whether its enforcement is a function of location within the community, and if so, specify how. Specify whether the code is enforced differently in different occupancies or types of buildings.



- (e) Determine how the hazard abatement code's enforcement is triggered. Specify if it is triggered uniformly for all buildings or classes of buildings, or whether it is triggered by actions other than the mere presence of the hazard, such as application for a building permit.
- (2) Property Maintenance/Housing Codes
- (a) Determine whether a housing code, property maintenance code, fire prevention code, health code, or any other regulation which may similarly cover the maintenance, operation and use of buildings, are in effect in the community. Some of these provisions may be part of building, mechanical, plumbing or electrical codes. For all such codes in effect, determine whether they include explicit criteria for various enforcement options by the authority having jurisdiction. Such criteria may be found in ancillary inspection manuals, or may be specified by reference to the building, mechanical, plumbing or electrical codes.
- (b) Exhibit the criteria for various enforcement actions contained in these codes, in the categories of structural safety, fire safety, health and hygiene, and any further breakdown of these categories as appropriate.
- (c) Determine how each of these maintenance codes is enforced, and by what agency. Specify whether each code's enforcement is a function of location within the community (e.g., target neighborhoods for housing code enforcement). Specify whether each code's enforcement is varied as a function of occupancy or building type (e.g., active housing code enforcement in nursing homes, active fire prevention code enforcement in public assembly occupancies, etc.).
- (d) Determine how the enforcement of each maintenance code is triggered. Specify how violations of these codes are brought to the attention of the authorities, and whether the codes' enforcement is triggered uniformly for all buildings, classes of buildings, neighborhoods or similar classifications, or whether it is triggered by actions independent of the normal operation, maintenance and use of existing buildings, such as application of a building permit.

(3) Retroactive Regulations

- (a) Identify all retroactive regulations currently applicable to existing buildings in the community.
- (b) For each retroactive regulation, identify the unsafe or undestructable conditions which the regulation is intended to correct. Specify whether the regulation applies to all buildings, to specific occupancies or building types, or to any other limited category of buildings.
- (c) For each regulation, determine the criteria which must be met for compliance. Those criteria may be established by reference to the building code or some other code.
- (d) Exhibit the criteria for compliance with each retroactive regulation in the categories of structural safety, fire safety, health and hygiene, as applicable.
- (e) Determine how each retroactive regulation is enforced, and by what agency. Specify whether the enforcement is a function of location within the community, or of any categorization of buildings (e.g., by occupancy, type, age, condition, etc.).
- (f) Determine how the enforcement of each retroactive regulation is triggered. Specify how deficiencies are brought to the attention of the authorities. Determine whether the enforcement is triggered by actions which are independent of the presence of the specific deficiencies, such as application for a building permit.

A.2 DEFINE NEW CONSTRUCTION REQUIREMENTS AND THEIR ENFORCEMENT

- (a) Identify all existing codes currently applicable to new construction in the community. These may include a building code, mechanical code, plumbing code, electrical code, various specialty codes, life safety codes and special regulations.

- (b) Determine the occupancy and use categories into which buildings are classified by the codes. Determine fire districts, or other locational categories into which buildings are classified by the codes.
- (c) For each building classification, determine which must be met for compliance.
- (d) Categorize these criteria into the same, or similar categories to those utilized for displaying the criteria for the codes and regulations applicable to existing buildings as specified in the preceding section. Display the criteria in these categories to the extent and level of detail possible.
- (e) Describe how the codes covering new construction are enforced, and by what agencies. Include in this description any cross-referencing or inter-agency coordination employed in the enforcement. If code enforcement is carried out by various levels of government (state, county), it should be fully described. Determine the mechanisms for triggering code enforcement activities, such as application for building permits, mechanical permits, electrical permits, etc.
- A.3 DEFINE PROVISIONS COVERING BUILDING REHABILITATION
- (1) 25-50% Rule
- (a) Determine whether the community's building code includes the 25-50% Rule or similar rule covering building repair and alteration. Determine whether a similar rule is included in the mechanical, plumbing and electrical codes.
- (b) Determine how the building code addresses additions to existing buildings.
- (c) If the 25-50% Rule, or similar rule, is in effect, determine the criteria that are required for compliance when rehabilitation work falls into one of the following three categories:
- under 25%
  - 25-50%
  - over 50%
- (d) Determine whether reference is made to any other codes (e.g., the code under which the building was originally built) in establishing these criteria.
- (e) Display the criteria for compliance in the same categories as those utilized in the preceding section.
- (f) If the 25-50% Rule, or similar rule, is in effect, determine how it is enforced. Specify how the value of the numerator (value of repair and alteration work) is determined in terms of work items covered and cost estimates. Specify how the value of the denominator (value of the existing building) is determined.
- (g) Determine whether the 25-50% Rule is enforced uniformly for all buildings, or whether its enforcement differentiates between classes of buildings on any basis.
- (h) Determine whether the 25-50% Rule discriminates against certain building owners or certain neighborhoods in the community, by resulting in the imposition of different criteria for similar rehabilitation of similar buildings.
- (2) Change of Occupancy
- (a) Determine the current regulation governing code compliance of existing buildings involved in a change of occupancy. Usually this regulation is part of the building code.
- (b) Determine whether the change of occupancy regulation requires full compliance with all code requirements for new construction of the occupancy proposed, or whether only partial compliance is required. If partial compliance is included in the regulation, determine whether it is based on a systematic ordering of occupancies in terms of hazard, or on a similar defined analytical procedure.

- (c) If partial compliance is included, determine the criteria which are established for each category of occupancy change, and display the criteria in the same categories as those utilized in the preceding section.
- (d) Determine how the change of occupancy regulations are enforced, and whether they are enforced uniformly throughout the community.
- (3) Other Rehabilitation Provisions
- (a) Identify all other provisions which may affect building rehabilitation in the community. These may include historic preservation waivers, landmark provisions, general building rehabilitation provisions, etc. Some of these may be included in ancillary inspection manuals or similar documents.
- (b) Determine what criteria are specified for compliance with any such special provision, and display them in the same categories as those utilized in the preceding section.
- (c) Determine how these special provisions are enforced, including use of advisory boards, review panels, appeals boards, etc.

#### A.4 COMPARE CRITERIA LEVELS

Compare the displays of the various sets of criteria included in all elements of the existing building regulatory system in the community which were defined and displayed under A.1-A.3 above. This comparison may take the form (graphically or conceptually) of the conceptual diagram included in Part I of this Guideline. In such an approach, the criteria for new construction are likely to define an upper limit of performance. The requirements imposed on existing buildings are likely to define a lower limit of performance. The existing regulations governing building rehabilitation will define where different categories of rehabilitation are required to fall between these two limits.

This comparison and display of criteria levels will identify for policymakers the extent of upgrading

required for rehabilitated buildings by the existing regulatory system, and will enable them to determine whether this upgrading is consistent with local rehabilitation policies.

#### B. DEFINE PERTINENT CHARACTERISTICS OF BUILDING REHABILITATION IN THE COMMUNITY

Building rehabilitation in a community is a function of many factors, such as:

- physical characteristics of the community
- age and condition of the building stock
- economic conditions of development
- socio-economic conditions in the community
- regulatory system and its history
- public policy at the federal, state and local levels of government.

It is necessary to define the following pertinent aspects of building rehabilitation, and their relationship to some of these factors:

- Define occupancies involved or potentially involved in rehabilitation.
- Define building ages and types involved or potentially involved in rehabilitation.
- Determine extent of illegal rehabilitation.
- Define existing rehabilitation policies.

#### B.1 DEFINE OCCUPANCIES INVOLVED OR POTENTIALLY INVOLVED IN REHABILITATION

Determine whether building rehabilitation in the community is principally a matter of upgrading or re-use of existing occupancies (e.g., residential

rehabilitation, commercial rehabilitation, etc.), or whether it is a matter of changing occupancies (e. g., commercial to residential, residential to commercial, residential to assembly, etc.) This can be determined both by observing actual current rehabilitation projects, as well as by identifying potential candidates for rehabilitation (which due to existing problems or constraints may not be currently undergoing rehabilitation).

The nature of occupancy changes involved in rehabilitation is often related to the changing nature of neighborhoods and of the community as a whole, and is therefore subject to the economic conditions of development, socio-economic and physical characteristics of the community.

It is important to define the occupancies involved, or potentially involved in rehabilitation, because the building regulatory system is likely to treat rehabilitation involving occupancy change very differently from that in which no change is involved. In general, the former is likely to entail the enforcement of higher levels of performance in the rehabilitated building. For this reason it is also necessary to determine the extent to which the occupancy classifications contained in the community's building code (see A.2 above) correspond to, or fit with, the actual uses of buildings being rehabilitated. If this correspondence, or fit, is not clear, then the regulatory system will involve ambiguities in dealing with change of occupancy rehabilitation.

#### B.2 DEFINE BUILDING AGE AND TYPES INVOLVED OR POTENTIALLY INVOLVED IN REHABILITATION

Determine the age and principal characteristics (structural, architectural, mechanical) of buildings involved, or potentially involved in rehabilitation work in the community. This can be determined by both observing current projects as well as identifying potential candidates for rehabilitation.

While the age and principal characteristics of buildings are mainly a part of the general physical characteristics of the community, it must also be analyzed in relation to the history of the building regulatory

system in the community. Such an analysis will determine the extent of the disparity between the characteristics and performance of the existing building stock and the current code requirements for new construction. For example, a community where most of the buildings are 25 years old, and where there have been very few code changes during that period, will have very different problems of regulation of rehabilitation than a community with buildings over 50 years old and with a history of numerous code changes. Washington, D. C. and San Francisco fall into the latter category, which may explain the specific nature of their regulatory approach to rehabilitation (as discussed in PART I of this Guideline.)

#### B.3 DETERMINE EXTENT OF ILLEGAL REHABILITATION

Illegal rehabilitation is the practice of carrying out repairs and alterations in buildings without the permits required for such work by a community's regulatory system. It is necessary to determine the extent and nature of such rehabilitation occurring in the community, and to identify the classes of building in which it is occurring, because this characteristic may indicate the effectiveness of the regulatory system in dealing with rehabilitation. The extent and nature of this phenomenon may also help in identifying potential problems of safety, health and hygiene which should be addressed by the regulatory system for rehabilitation.

#### B.4 DEFINE EXISTING REHABILITATION POLICY

Identify all the current policies related to building and neighborhood rehabilitation which are in effect in the community. These policies may be federal (expressed by the community's acceptance of federal assistance), state or local.

Specify the building classes or types which are addressed by the rehabilitation policy.

Attempt to determine the relative real costs which these rehabilitation policies intend for the community to bear. For example, how much, if any, relative safety, convenience and other features should the community be willing to give up in order to achieve the goals of the rehabilitation policies.

#### C. IDENTIFY POTENTIAL PROBLEMS

The following conditions found in the community could indicate problems in need of solution:

##### (1) Conflict between the goals of rehabilitation and the goals of building regulation

While the health and safety goals of the building regulatory system are usually not made explicit in a community, the conflict between rehabilitation goals and regulation goals may be determined by the community if it finds that current building regulations force the upgrading of rehabilitated buildings to levels of performance which impose unacceptable cost on rehabilitation and prevent much rehabilitation from taking place, thereby failing to meet rehabilitation goals.

The community may also determine that such a conflict exists between rehabilitation and regulation goals when the enforcement of the regulations on existing buildings (hazard abatement codes, property maintenance codes and retroactive regulations) is triggered only by application for building permits, in which case the enforcement system is discriminating against all rehabilitation activities of the community, by enforcing regulations that should apply to all existing buildings.

##### (2) Discrimination of current rehabilitation regulations against a class of buildings or owners

This condition may occur in a community which applies the 25-50% Rule to rehabilitation, as discussed above.

##### (3) Violation of existing regulations

The existence of extensive illegal rehabilitation work in the community, as discussed above, is evidence of this condition.

The above conditions may indicate the existence of one or more of the following four problems, listed in increasing order of the required modification to the regulatory system. Each problem is defined in PART III of this Guideline, where recommendations are made for solutions.

1. NO MODIFICATION IN CURRENT REGULATORY SYSTEM (25-50% RULE AND CHANGE OF OCCUPANCY REGULATION) IS NEEDED
2. FLEXIBLE APPLICATION OF THE 25-50% RULE IS NEEDED
3. EXISTING REGULATORY SYSTEM, IN ITS RELATION TO BUILDING REHABILITATION, IS IN NEED OF MODIFICATION
4. A DEFINITION OF IMMINENT HAZARDS IS NEEDED IN THE REGULATORY SYSTEM

## PART III

## RECOMMENDATIONS FOR AMENDING OR MODIFYING

## THE REGULATORY SYSTEM TO ENCOURAGE REHABILITATION

\*\*\*\*\*

The following recommendations are established for each of the four problems defined in the preceding part of this Guideline. In general, a community will find that it is faced with one or more of these problems. All communities, however, should refer to the accompanying Statutory Guideline for Building Rehabilitation, Guideline for Managing Official Liability Associated with Building Rehabilitation, and the Guideline for the Municipal Approval of Building Rehabilitation for recommendations which are consistent with all four problems.

1. NO MODIFICATION IN CURRENT REGULATORY SYSTEM  
(25-50% RULE AND CHANGE OF OCCUPANCY REGULATION)  
IS NEEDED

Problem

The community determines that its current building code provisions applicable to rehabilitation, including the triggering of full code compliance by the 25-50% Rule and by the change of occupancy regulation, do not represent conflicts with rehabilitation goals, do not intentionally unduly constrain building rehabilitation and do not discriminate against classes of buildings or owners. Such a community accepts the imposition of new construction standards on much of its rehabilitation. However, the community determines that rehabilitation is unintentionally constrained by the prescriptive nature of many building code requirements.

Recommendations

The community should do the following:

- (a) Explicitly justify, as a matter of public policy, each code requirement which is applied by current regulations to rehabilitated buildings, and which

is in excess of the current requirements applicable to existing (unrehabilitated) buildings (e.g., hazard abatement code, property maintenance code and retroactive regulations).

- (b) Amend the building code, electrical code, plumbing code, etc. to explicitly mention the acceptability of alternate materials, methods of construction and design when dealing with buildings under the 25-50% Rule and with buildings undergoing a change of use or occupancy.
- (c) Implement the following technical Guidelines attached hereto:
  - Egress Guideline for Residential Rehabilitation
  - Electrical Guideline for Residential Rehabilitation
  - Plumbing DWV Guideline for Residential Rehabilitation

In general, each of these guidelines suggests alternative solutions providing equivalent performance as specified by current codes, which are recommended for building rehabilitation.

- (d) Implement similar technical guidelines to those of (c) above, which may be developed and published from time to time, or develop and implement similar guidelines.

2. FLEXIBLE APPLICATION OF THE 25-50% RULE IS NEEDED

Problem

Current building regulations include the 25-50% Rule. The majority of building rehabilitation in the community does not involve a change in use or in occupancy. The community's goals are to encourage such rehabilitation, and the community is willing to accept a level of performance for its rehabilitated buildings which is lower than that required for new construction. However, the 25-50% Rule as currently enforced requires full code compliance in more cases than the community finds appropriate and/or discriminates against classes of buildings or owners in the community.

Recommendations

The community should consider the following:

- (a) Defining Cost and Value

assess various occupancies using different methods which could lead to discrimination.

(b) Varying the Percentages

Consider increasing the percentages (e.g., 33-66% instead of 25-50%). This will tend to allow more rehabilitation before encountering new code requirements. To implement this change, a code amendment is required.

(c) Reduce the Time Span

The model codes and most local codes require that for purposes of the 25-50% Rule cost be defined as work done within one year. Reducing the time span to six months, for example, would tend to allow phased upgrading of buildings. This change, also, requires a code amendment.

(d) Consider the use, or possible modification (to reflect an acceptable lower level of performance), of the technical guidelines as suggested for the preceding problem.

3. EXISTING REGULATORY SYSTEM, IN ITS RELATION TO BUILDING REHABILITATION, IS IN NEED OF MODIFICATION

Problem

The Community determines that its current building regulations conflict with its rehabilitation goals by requiring upgrading of many or most of its rehabilitated buildings to the performance levels specified for new construction or even to some lower level, leading to unacceptably high costs of rehabilitation which unduly constrain building rehabilitation. Also, the community may determine that the regulatory system discriminates by enforcing existing building regulations in cases of rehabilitation only.

Recommendations

The community should do the following:

- (a) Consider applying or adapting a current regulatory innovation.

or

In any jurisdiction which has the 25-50% Rule and desires to interpret it to promote rehabilitation as much as possible, the objective is to obtain the lowest possible ratio of cost of rehabilitation (the numerator) to the value of the building (the denominator). The definition of cost, therefore, should be as low as possible. Based upon case studies the following methods of defining cost are either in use or suggested by building officials. Except where noted, these interpretations may be made by the building official without changing regulations.

(i) Defining Cost of Rehabilitation (the numerator)

Objective: Obtain Lowest Possible Value

- Exclude all non-permit items such as painting and decorating, kitchen cabinets, landscaping, architect's fee, and the like.
- Exclude all items which require a separate permit and which are normally covered by a separate code not governed by the 25-50% Rule, such as plumbing, electrical and elevator.

(ii) Defining Value of the Building (the denominator)

Objective: Obtain Highest Possible Value

- Define value as current replacement cost before rehabilitation, and update at least annually.
- Define value as current replacement cost after rehabilitation. (May not be feasible under the Standard Building Code since it requires the "then" physical value, presumably before rehabilitation. Also, the BOCA Basic Building Code implies replacement value before rehabilitation although not specifically stated).
- Assessed value is reportedly used in some jurisdictions, but in general assessed value lags behind true replacement value. In addition, assessing practices often

- (b) Develop its own local rehabilitation code, provisions or guidelines.

(a) Consider applying or adapting a current regulatory innovation.

Part I and the Appendix of this Guideline contain discussions of various existing comprehensive or partial regulatory innovations. These include:

- Washington, D. C.
- San Francisco, California
- Denver, Colorado
- State of Massachusetts
- Los Angeles, seismic regulation
- State of California draft legislation related to seismic hazards
- Chapter 10, Official Electrical Code of the City of Detroit

The community faced with this problem may consider adopting or modifying one or more of these regulatory innovations. Such a community should do the following:

- (1) Analyze each innovation in detail, from the materials appended to this Guideline. This analysis should pay particular attention to the specific community characteristics (physical, social, economic, political, etc.) which led to the development of each regulation. Since each of the regulation examples was developed to respond to local community conditions and needs, a given community considering adopting such a developed regulation must be aware of the similarities and dissimilarities of its own community characteristics in relation to those of the model being analyzed. A level of performance acceptable in one community may not be acceptable in another.

Note that of the complete "solutions," Washington, D. C. and San Francisco use specific, and often prescriptive, provisions applicable to rehabilitation. These may have limited transferability to any but very similar cities. Denver provides a mechanism for dealing with every case individually, rather than establishing comprehensive provisions. Massachusetts uses an approach in which every building defines the level of performance to which it must be rehabilitated.

- (ii) Based on the analysis, adopt and/or modify one of the model regulatory innovations.

(iii) Amend current codes appropriately, including deletion of the 25-50% Rule and/or the change of occupancy provisions. It must be realized that such deletions require the substitution of specific provisions. It should also be noted that by deleting the 25-50% Rule, a community may inadvertently have a deleterious effect on rehabilitation below 25%, which currently enjoys the continuation of non-conforming rights.

- (iv) Consider the use, or possible modification (to reflect an acceptable lower level of performance), of the technical guidelines as suggested in the preceding problem.

(b) Develop local rehabilitation code or guidelines

If the community determines that none of the regulatory innovations are applicable, it should develop its own rehabilitation code, regulation or guidelines. It should proceed as follows:

- (1) Determine the levels of performance required for all existing buildings by the current hazard abatement code, property maintenance code and retro-active regulations. As a minimum, all rehabilitated buildings must meet these levels. Note that in the absence of a current definition of "imminent hazard," the recommendations for Problem 4, below, should be followed.

- (ii) If the community determines that higher levels of performance are to be required for rehabilitated buildings (involving no occupancy change, as well as involving change of occupancy), each such requirement should be individually justified, as a matter of public policy. The justification should cover structural safety, fire safety, health and hygiene.

- (iii) Amend the current building code to delete all provisions dealing with repair and alteration of existing buildings (25-50% Rule and change of occupancy provisions).

- (iv) If the proposed rehabilitation regulations will rely on direct reference to the current codes dealing with existing buildings, these codes should be analyzed for references to the building code, electrical code, mechanical code, plumbing code, etc., to ensure that all references leading to inconsistency are deleted.



- (v) Consider the use, or possible modification (to reflect acceptable lower levels of performance), of the technical guidelines as suggested in the preceding problem.

A format and methodology for developing a local rehabilitation code, based on comparative analysis of rehabilitation needs with the code requirements for new construction, is presented in Appendix 12 of this Guideline.

#### 4. A DEFINITION OF IMMINENT HAZARDS IN NEEDED IN THE REGULATORY SYSTEM

##### Problem

The community may have a need to define "imminent hazard." For a community facing any of the preceding three problems, the problem may be its desire but inability to establish compliance priorities for any level of performance.

For a community facing problem categories 2 or 3 above (i.e., considering acceptance of lower levels of performance for rehabilitated buildings), the problem may be the inability to establish the absolute lowest acceptable level of performance by requiring only the elimination of "imminent hazards" as a requirement attending rehabilitation.

##### Recommendations

To assist the community in assessing an "imminent hazard," the following attributes and criteria should be considered:

##### (a) Structural Safety

A building presents an imminent hazard:

- (1) Whenever the stress in any materials, member or portion thereof, due to all dead and live loads, is more than one and one-half times the working stress or stresses allowed in the code for new buildings of similar structure, purpose or location.
- (2) Whenever any portion thereof has been damaged by fire, earthquake, wind, flood or by any other cause to such an extent that the structural strength or stability thereof is materially less than it was before such catastrophe and is less than the minimum requirements of the code for new buildings of a similar structure, purpose or location.
- (3) Whenever any portion or member or appurtenance thereof is likely to fail, or to become detached or dislodged, or to collapse and thereby injure persons or damage property.

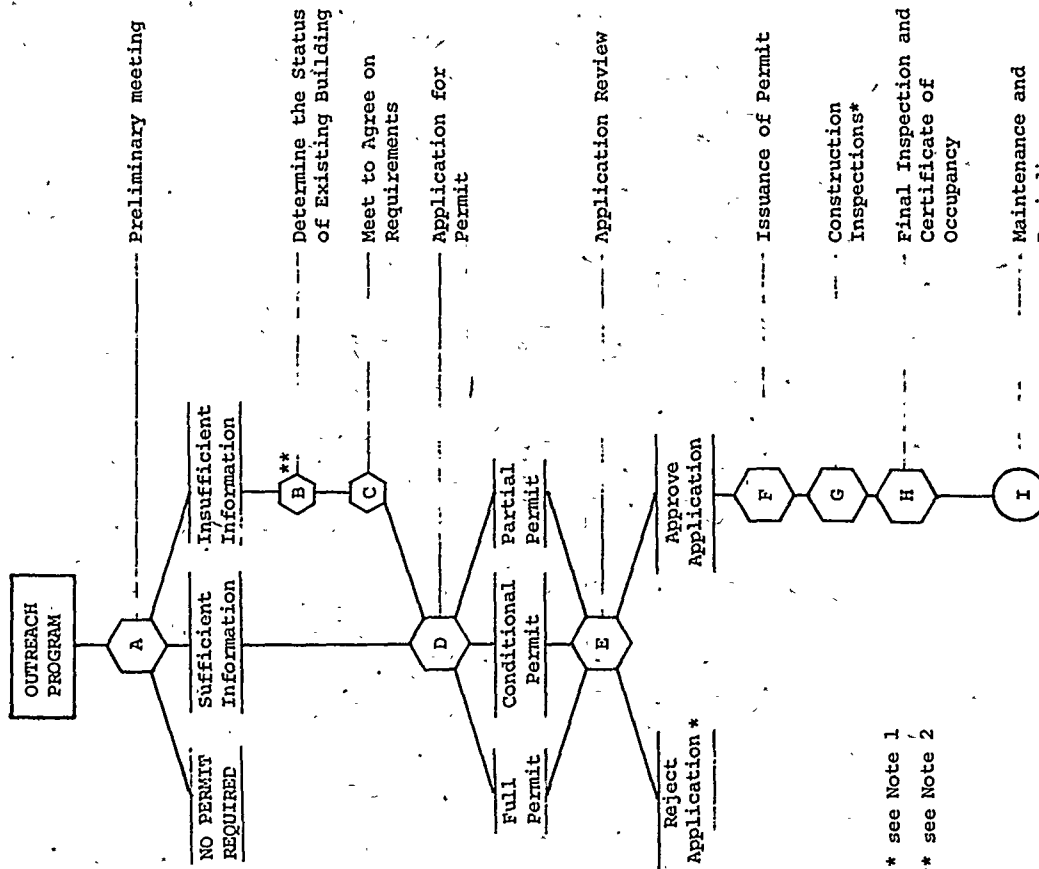
- (4) Whenever any portion of a building, or any member, appurtenance, or ornamentation on the exterior thereof is not of sufficient strength or stability, or is not so anchored, attached or fastened in place as to be capable of resisting a wind pressure of one-half of that specified in the code for new buildings of similar structure, purpose or location without exceeding the working stresses permitted in the code for such buildings.
  - (5) Whenever any portion thereof has racked, warped, buckled or settled to such an extent that walls or other structural portions have materially less resistance to winds or earthquakes than is required in the case of similar new construction.
  - (6) Whenever the building or structure or any portion thereof because of: a) dilapidation, deterioration or decay; b) faulty construction; c) the removal, movement or instability of any portion of the ground necessary for the purpose of supporting such buildings; d) the deterioration, decay or inadequacy of its foundation; or e) any other cause, is likely to partially or completely collapse.
  - (7) Whenever the exterior walls or other vertical structural members list, lean or buckle to such an extent that a plumb line passing through the center of gravity does not fall inside the middle one-third of the base.
- (b) Number of Exits
- A building presents an imminent hazard whenever less than two approved independent exitways serve every story (except as modified by current building code or by the accompanying Egress Guideline for Residential Rehabilitation).
- (c) Capacity of Exits
- A building presents an imminent hazard whenever any required door, aisle, passageway, stairway or other required means of egress is insufficient to comply with the current code section on exit capacity or is so arranged as to preclude safe and adequate means of egress (see Egress Guideline for Residential Rehabilitation).
- (d) Other
- A building presents an imminent hazard whenever conditions exist which in the code official's judgment would be cause for an otherwise fully complying building to be evacuated or padlocked, or for the site or other adjacent areas to be evacuated, barricaded or otherwise protected.

## INTRODUCTION

Building departments regulate construction with procedures that, although designed primarily for new construction, are nevertheless imposed on the submittal, review, and approval of rehabilitation projects. Imposition of these procedures often results in rehabilitation project delays, submittal of unnecessary paperwork, unjustified increases in project costs, and other adverse impacts on building rehabilitation.

While post-permit inspection procedures for rehabilitation are generally similar to those of new construction (except that extra allowance must be made for unforeseen conditions), pre-permit procedures should vary considerably since permit approval must depend on assessing the known and unknown characteristics of buildings in-place rather than evaluating only the design documents that are the basis for new construction.

The following model submittal, review, and approval process for building rehabilitation should be adopted, in full or abbreviated form, by communities that wish to encourage rehabilitation.



**Figure 1**

# MODEL SUBMITTAL, REVIEW, AND APPROVAL PROCESS FOR REHABILITATION

is necessary, it can be obtained in one or both of the following ways:

- 1) Field survey. This survey should be conducted jointly by the applicant and the building official, and may include:

- determination of structural integrity, measurement of height and area, assessment of egress and fire resistance, and identification of visible structural and other hazardous conditions
- determination of serviceability and safety by means of load and sprinkler tests, or the removal of selected materials and equipment for system tests

An exploratory permit may be required for testing, or for the removal of selected materials, components, or equipment for system tests. If such a permit is required, see Note 2.

- 2) Examination of building documents. Building documents, records, and drawings can yield substantial information about the building's structure and original construction. The applicant and the building official should carefully review all such documentation that may be available.

#### STEP C

MEET TO AGREE ON REQUIREMENTS. Based on the information established in STEP B, the applicant and the building official must meet to agree on the code-related requirements that will be applied to the rehabilitation project. This will include the following:

- 1) Scope of Work. Agreement should be reached regarding specific corrections required to meet code requirements, alternative methods for meeting the intent of the code, acceptance of existing situations not in conformance with the code, and recognition of any situations that will necessitate a formal appeals process.
- 2) Required Permits. The applicant may be required to apply for separate plumbing, electrical, elevator, gas fitting, etc., permits. In this event, the building official should provide information on the permits required, their cost, and how to apply for them.
- 3) Work Documentation. The applicant must be responsible for, at minimum, a work write-up consisting of a description of the work to be undertaken.

#### MODEL SUBMITTAL, REVIEW, AND APPROVAL PROCESS FOR REHABILITATION

The following explanatory narrative is keyed to the diagram in Figure 1.

OUTREACH PROGRAM. Although not specifically a part of the submittal, review, and approval process, an Outreach Program, conducted by the building department or other municipal agency, can inform the building community, and the community at large, of the jurisdiction's requirements for rehabilitation. The program should provide information regarding:

- permits needed
- how to obtain them
- technical requirements of rehabilitation
- necessary inspections, and when they must occur
- related regulatory and procedural matters

#### STEP A

PRELIMINARY MEETING. An applicant's intent to rehabilitate a specific property should be discussed, at the earliest possible date, in a preliminary meeting (either by telephone or in person) with the building department. The applicant should specify the property's proposed use and occupancy, and describe the proposed rehabilitation work to be done. The building official should provide the applicant with information concerning code requirements, mandatory inspections, and permit fee schedules. In addition, the building official should provide information about the forms and applications that must be obtained from other community bodies such as the planning commission, the zoning board, the design review board, the landmarks commission, etc.

Based on the preliminary meeting, the building official must make one of three findings:

- no permit is required for the work to be done
- a permit is required, and sufficient information exists for a permit application to be made via the usual process (STEP D)
- a permit is required, but more information is required prior to permit application (STEPS B and C)

#### STEP B

DETERMINE THE STATUS OF THE EXISTING BUILDING. When more information

For larger rehabilitation projects, one or more of the following may be necessary:

- engineering calculations
- construction and "as built" drawings
- test data

Since documentation of the many hidden components of existing buildings is frequently impossible, the documentation requirements for rehabilitation are usually less stringent than those required for new construction.

#### STEP D

APPLICATION FOR PERMIT. The following steps are common to both new construction and rehabilitation. Depending on the decisions made in the preapplication phase, any one of the following types of permits may be sought:

- 1) Full permit. When there is sufficient information about the total scope of work, a full permit application may be filed.
- 2) Conditional permit. When there is insufficient information about an aspect of the total scope of work, a conditional permit may be applied for. Once conditions are met and verified by inspection, permit restrictions will be removed.
- 3) Partial permit. When the amount of information is insufficient for application for a full permit, but sufficient information exists for a segregable portion of the work (such as roof repair or replacement), a permit application for that part of the work may be filed. Additional partial permits may be requested at later stages of construction, and the partial permits may in the aggregate serve as a full permit.

NOTE: All work must proceed at the applicant's risk under conditional and partial permits.

#### STEP E

APPLICATION REVIEW. The permit application is reviewed by the building department and any other agency with jurisdiction (such as the zoning board). Two results are possible:

- Approval of the Application
- Rejection of the Application. The applicant may reapply, making necessary changes; he may appeal; or he may decide not to pursue the permit process (see Note 1).

#### STEP F

ISSUANCE OF THE PERMIT. The permit is issued and construction may begin to the extent the permit allows. The building official must notify the applicant when inspections will be conducted and what work will be inspected

#### STEP G

CONSTRUCTION INSPECTIONS. The field inspection process for rehabilitation should follow new construction procedures, with a series of inspections during construction and a final inspection upon completion. The inspections should be conducted by building inspectors or by specialty trade inspectors for specific work components such as electrical or plumbing. The timing of inspections falls into two categories:

- Called inspection. The rehabilitator calls for an inspection at predetermined points in the construction process.

- Drop-in inspection. This inspection is not necessarily based on the construction schedule. Instead it is based on the schedule the inspector must keep to cover his work load.

For rehabilitation projects, field inspectors should carry a copy of the requirements jointly agreed to by the building department and the rehabilitator (see Step C). This may prevent unnecessary problems and misunderstandings between both parties during field inspections (see Note 1).

#### STEP H

FINAL INSPECTION AND CERTIFICATE OF OCCUPANCY. Upon completion of construction, the building department conducts a final inspection of the building. If compliance with requirements has been met, the building department issues a certificate of occupancy. For large or complex rehabilitation projects, and those where alternative code solutions were permitted, pertinent drawings, records, and agreements should be made a part of the building department's official records.

#### STEP I

MAINTENANCE INSPECTIONS AND PERIODIC INSPECTIONS. Maintenance and periodic inspection should be conducted in accordance with existing community ordinances, regulations, and codes.

#### Note 1

#### REJECTION OF PERMIT APPLICATION AND FIELD DISPUTES

When application for permit is rejected by the building department, or when field inspection disputes arise, the applicant may choose either of the following alternatives:

- 1) Revise the Rehabilitation Project's Scope-of-Work. Revision of the scope-of-work can be accomplished by repeating STEPS B and C. The building official and the applicant may discuss alternatives to meet requirements under dispute. Upon agreement by both parties, the applicant may reapply for a permit.
- 2) Appeals Board. If a revision to the scope-of-work is not acceptable to the applicant, the applicant may choose to appeal to the appellate body. The appellate body may grant the appeal, not grant the appeal, or provide alternate solution(s).

#### Note 2

#### EXPLORATORY PERMIT

An exploratory permit may be used to allow concealed construction or equipment to be exposed for inspection. With the information gained from such an inspection, the applicant and the building department can better complete STEP B. Exploratory permits should normally be necessary for large or complex rehabilitation projects where the amount of work necessary to expose concealed construction is extensive or poses a potential hazard.

## CHAPTER 3

STATUTORY GUIDELINEFORBUILDING REHABILITATIONINTRODUCTION

The authority to administer and enforce building-related codes is derived from statutes enacted by state and local legislative bodies. Normally these statutes determine the goals which are to be accomplished and establish the offices to carry out these goals. There currently exists a wide variety of code decision making systems for achieving statutory goals. This guideline provides recommendations for modifying existing code decision making systems with the express goal of promoting rehabilitation.

CODE DECISION MAKING FUNCTIONS

An analysis of code decision making systems reveals that they incorporate five general decision making functions. These functions, with associated recommendations, are explained as follows:

1. **Basic Policy Making.** Basic policy making for building-related codes is primarily the domain of state and local legislative bodies. Legislatures set basic policy goals. They authorize the adoption, revision, and integration of general codes related to building, housing, maintenance, health, and hazard abatement, as well as specialized codes for electrical, plumbing, mechanical, fire and life safety, architectural barriers, and energy, among others. Legislatures also create the rulemaking, enforcement, appeals, and advisory bodies needed to carry out the code regulatory process. These bodies may be assigned policy making functions of their own, including:
  - promulgating rules, regulations, and procedures
  - monitoring and evaluating code effectiveness and application
  - making legislative recommendations
  - providing technical advice or judgmental determinations

The following basic policy making recommendations should be adopted to promote building rehabilitation:

- Recommendation 1. Provide a Statement of Purpose that includes Rehabilitation*
- Recommendation 2. Create a Rehabilitation Advisory Board*
- Recommendation 3. Emphasize Rehabilitation Expertise in Code Rulemaking and Appellate Bodies*

2. **Code Revision.** Code revision involves the ongoing review and amendment of building-related requirements and standards. In statewide building codes, revisions are most commonly made by an independent rulemaking body - such as a state building code commission - through powers conferred by the legislature. In municipalities, a similar procedure may be followed, or the municipal legislature may itself enact code revisions.

The following code revision recommendation should be adopted to promote building rehabilitation:

- Recommendation 4. Establish Procedures for Determining the Impact of Code Revisions on Building Rehabilitation*

3. **Administration and Enforcement.** Code administration and enforcement consists primarily of plan or work reviews, permit issuance, and field inspections. These functions are largely carried out at the local level by one or more departments within a jurisdiction. Administration and enforcement also implies the following activities:
  - management, supervision, and training of personnel
  - record keeping and documentation
  - development of inspection manuals and related publications
  - initiation of studies, evaluations, and assessments
  - coordination of work with other departments or agencies

The following administration and enforcement recommendations should be adopted to promote building rehabilitation:

- Recommendation 5. Mandate Administrative Innovation for Rehabilitation*

4. **Special Applications.** Codes normally define the regulatory areas that require judgment by the enforcement body in lieu of specific prescriptive provisions. Building codes make allowance for the following kinds of these "special provisions" that may be of value in increasing the discretionary powers of code enforcement bodies:
  - modifications to structural, mechanical, or other provisions when practical difficulties dictate
  - alternate materials, equipment, and methods of construction not described in specific code provisions
  - change in building occupancy or use
  - additions, alterations, and repairs with a value below a specified percentage of building replacement or other cost
  - buildings of special historical or architectural significance

Other discretionary powers may be given to the enforcement body by the legislature, with the general limitation that such powers be used consistent with the health and safety purposes of the codes involved.

RECOMMENDATIONSRecommendation 1Provide a Statement of Purpose that Includes Rehabilitation

Legislative bodies articulate their fundamental policy goals in either the statement of purpose of a code, or code enabling legislation. Although statements of purpose may be considered unimportant to the substance of the legislation, they provide the basic policy expression to which other decision-making bodies - rulemaking, enforcement, appellate, and advisory - must frequently turn to resolve difficult questions. The following language gives a broad expression of support to rehabilitation:

*"The (legislative body) finds that the public health, safety, and welfare is in part dependent on the conservation, rehabilitation, and reuse of the existing building stock, including both residential and other buildings; that the application of new construction requirements and standards to the rehabilitation of existing buildings unnecessarily increases the cost thereof; that adequate enforcement of minimum housing and other standards for safe and decent human habitation requires expeditious and cost-effective procedures for encouraging the rehabilitation of existing buildings; that rehabilitation is a major mechanism for increasing the health and safety in existing buildings; and that adequate resources in the form of public and private initiatives exist to increase and expand the incidence of rehabilitation when such rehabilitation is free of unreasonable regulatory restraint."*

*"It is therefore the purpose of this Code, to the maximum extent consistent with basic standards of human health and safety -*

*"(1) to promote the rehabilitation of existing sound buildings by allowing for differences between rehabilitation and new construction in the application of the requirements and standards of this code;*

*"(2) to encourage in rehabilitation the utilization of innovative and economical materials and methods of construction; and,*

*"(3) to encourage the agencies charged with enforcement of this code, and the officers thereof, "(i) to apply the provisions of this code to rehabilitated buildings in a manner*

*These special applications are discussed in depth in the Guideline for Setting and Adopting Standards for Building Rehabilitation.*

*Official liability involved in the use of the discretionary powers allowed by these special applications is the subject of the Guideline for Managing Official Liability Associated with Building Rehabilitation.*

5. Appellate Review. Appellate review is the process whereby an aggrieved party may appeal a decision by the code enforcement body. Building and related codes normally provide for an appellate board of some kind, for those that don't, appeals may be made to a judicial body. While appellate review is meant to be a second level dispute resolution by an impartial party, it may also be used to grant variances where the code enforcement body is not empowered to do so. When appellate decisions are written and publicly available, they can serve as a source of guidance for subsequent decisions and as an indicator of possible code revision needs.

The following appellate recommendations should be adopted to promote building rehabilitation.

*Recommendation 6. Provide for Rehabilitation Variances by the Appellate Body*

*Recommendation 7. Evaluate Other Conditions Affecting Appeals*

consistent with the purposes stated herein; and, "(ii) to exercise discretion and employ resourcefulness in the evaluation of code compliance of rehabilitated structures, in a manner consistent with the purposes stated herein."

#### Recommendation 2

##### Create a Rehabilitation Advisory Board

A specialized technical advisory board with experience and expertise in the problems of rehabilitation can provide significant help to the decision-making burdens of the legislative, rulemaking, appellate, and enforcement bodies. Such an advisory board can supply key advice on policies and activities that affect all phases of building rehabilitation. The following language may be used to create such an advisory board:

*"The (legislative, rulemaking, or enforcement body) shall establish and periodically consult with a Rehabilitation Advisory Board (and other such advisory groups as may be deemed desirable) in the execution of its responsibilities under this (code). The Rehabilitation Advisory Board shall consist of no fewer than five (5) members, appointed by (appropriate person) for a term of (2) years, each of whom shall have experience and/or expertise in the rehabilitation of existing buildings and structures. The Rehabilitation Advisory Board shall provide advice and consultation to (legislative, rulemaking, enforcement, and appellate bodies) on all substantive decisions and actions that influence or otherwise affect rehabilitation within (name of jurisdiction)."*

#### Recommendation 3

##### Emphasize Rehabilitation Expertise in Code Rulemaking and Appellate Bodies

Background qualifications and professional expertise are common requirements for members of code rulemaking, enforcement, appellate, and advisory bodies. Their obvious purpose is to assure that the necessary expertise is brought to bear by key advisory and decision-making personnel. In addition to the usual requirements for professional engineers, registered architects, skilled tradesmen, and the like, persons with rehabilitation experience and expertise should be included in rulemaking and appellate bodies. This may be statutorily required, as follows:

*"For (rulemaking and appellate bodies), appoint one or more members that shall be persons of recognized ability and experience in the problems of, and practice incidental to, the rehabilitation of existing buildings."*

#### Recommendation 4

##### Establish Procedures for Determining the Impact of Code Revisions on Building Rehabilitation

It is particularly important that new and existing code requirements and standards be assessed to determine their impact on the rehabilitation process. Language requiring this of a rulemaking, enforcement, or advisory body should stress the reporting of its findings:

*"The (rulemaking, enforcement, or advisory body) shall monitor and evaluate, on an ongoing basis, the effectiveness and application of the provisions of (code or codes) and any rules, regulations, or procedures promulgated thereunder, to determine their impact on the rehabilitation of existing buildings. Pursuant to this responsibility, the (rulemaking, enforcement, or advisory body) shall gather information, conduct studies, and make (in consultation with the Rehabilitation Advisory Board) appropriate reports and recommendations related to the application of these provisions, the decisions of the (appellate body), and the experience of other jurisdictions."*

#### Recommendation 5

##### Mandate Administrative Innovation for Rehabilitation

Successful approaches to rehabilitation may be heavily dependent on the day-to-day details of processing, inspection, and personnel management. Administrative streamlining can reduce rehabilitation processing time; special training programs can familiarize personnel with the unique problems of rehabilitation; and field inspection manuals can describe procedures for efficiently addressing local rehabilitation problems. These administrative devices may significantly lower rehabilitation entry barriers and costs, provided that the time, budget, and human resources are made available to develop and implement them.

Using one or more of the following clauses, a legislative body can require a code enforcement agency to:

- "initiate a separate submittal/approval process for rehabilitation projects"
- "coordinate, with (appropriate agencies or departments), the development of specialized permit, inspection, and related administrative programs that encourage rehabilitation"
- "establish special training programs in rehabilitation for building inspectors, permit review personnel, and other staff specialists"
- "create and publish field inspection manuals, guidelines, and other publications to describe the applicability of (code or codes) to the rehabilitation of existing buildings, and to the administration of such codes"
- "initiate a special rehabilitation office to answer rehabilitation inquiries, provide information on Federal and other assistance programs, and perform related duties"
- "initiate an outreach program to encourage building rehabilitation"
- "appoint a Chief of Building Rehabilitation and/or rehabilitation specialists to coordinate and/or perform rehabilitation inspections and grant permit approvals"

\* see Guideline for the Municipal Approval of Building Rehabilitation

#### Recommendation 6

##### Provide for Rehabilitation Variances by the Appellate Body

The appeals section of the code should contain an unequivocal statement allowing the appellate body to vary or modify code requirements that are impractical or that create financial hardship in rehabilitation projects. Language for such a statement is as follows:

*"For the rehabilitation of existing buildings, the (appellate body) may vary or modify, in whole or in part, the application of any provision of this code where compliance with such provision creates*

*practical difficulty or undue financial hardship. Such variance or modification shall be consistent with the purpose of this code to achieve acceptable levels of safety and to promote the conservation, rehabilitation, and reuse of the existing building stock."*

#### Recommendation 7

##### Evaluate Other Conditions Affecting Appeals

Successful rehabilitation project appeals also depend on the following conditions external to the appeals section of the code:

- that the legislative purpose of the code clearly recognizes rehabilitation as a public policy goal (see Recommendation 1)
- that persons with expertise in rehabilitation are members of the appellate body (see Recommendation 3)
- that the code clearly states that the rehabilitation of existing buildings be treated differently from new construction (see Recommendation 1)
- that appellate procedures are not unduly costly or time consuming, or do not otherwise provide disincentives, especially to small rehabilitation projects
- that appellate decisions are made in writing for use as precedent in later cases
- that any person aggrieved by a decision of the code enforcement body should be entitled to appeal



## CHAPTER 4

INTRODUCTION

The successful rehabilitation of buildings constructed prior to the enactment of existing building codes requires approaches that achieve code purposes (such as adequate ventilation) within the restraints (such as existing windows) imposed by the architectural characteristics that make the structure worth rehabilitating. Even where the law grants to governments and their officials the authority to act with discretion and to seek new solutions to code requirements, the fear of liability for decisions that may result in the death or injury of an occupant of the rehabilitated building chills the willingness of those governments and officials to apply building codes with latitude sufficient to permit successful rehabilitation. Although courts have only rarely imposed liability upon code enforcement agencies or their officials for conduct related to building code enforcement, the scope of governmental liability to private citizens has generally increased, creating uncertainty and anxiety among individual code officials. In light of the trend of increasing liability, the mere threat of litigation, and the time, expense, and injury to professional reputation that accompanies even the groundless suit, inhibits needed creativity in code interpretation and enforcement.

GUIDELINE FOR MANAGING OFFICIAL LIABILITYASSOCIATED WITHBUILDING REHABILITATIONPROBLEMS AND RECOMMENDATIONS1. General Immunities for Government Employees

Problem: The liability of state and municipal employees is unclear in many states, and undue conservatism in code enforcement results from the code official's uncertainty of his legal status.

Discussion: In approximately half the states of the United States the liability of state and/or municipal employees is unclear. Often, state statutes abrogating governmental immunities overlook the personal liability of governmental employees. When such an omission occurs, courts presented with the issue must guess the legislature's intent, and the results have been inconsistent. In many jurisdictions without relevant statutes, there are no court decisions of recent enough vintage to provide guidance to the individual employee.

To fill this vacuum, statutes should be enacted addressing government employee liability (or immunity) for negligent actions. They can be drafted to provide protection for code enforcement functions pertinent to rehabilitation without singling out building code enforcement for special treatment.

### Recommendations:

1.1 States should grant state and municipal employees immunity from liability for negligence arising from one of the following:

1.1.1 all their activities within the scope of their authority. The following language is based on Conn. Gen. Stat. Ann. 4-165. The second sentence is appropriate only in those jurisdictions that have waived governmental immunity:

*"No (state/municipal) officer or employee shall be personally liable for damage or injury, not wanton or wilful, caused in the performance of his duties and within the scope of his employment. Any person having a complaint for such damage or injury shall present it as a claim against the (state/municipality) under the provisions of (applicable state or municipal law)."*

1.1.2 their discretionary activities within the scope of their authority. The following language is based on Cal. Gov. Code §820.2. The phrase "except as otherwise provided by statute" allows for specific exceptions, such as absolute immunity for high-ranking officials:

*"Except as otherwise provided by statute, a public employee is not liable for an injury resulting from his act or omission where the act or omission was the result of the exercise of the discretion vested in him, whether or not such discretion be abused."*

1.2 In the absence of state action, municipalities should enact provisions granting the same immunities. In each case, the municipality must first ascertain that it has the legal authority to immunize its employees from state tort law. An example of such an enactment is the following Wilmington, Del. ordinance, 2 Wilm. C. §34-7:

*"No member, officer or agent of the Department of Licenses and Inspections shall be sued or held to liability for any act done or omitted in good faith and with ordinary discretion on behalf of or under such Department, or pursuant to the Charter of the City, or any statutes, ordinances or rules and regulations under which such Department has authority to act."*

1.3 States and local jurisdictions should consider indemnifying their employees for the expenses of defending against lawsuits arising out of their work, and for the payment of judgments handed down against them in such lawsuits. Indemnification can be required by statute, with the use of the following language:

*"All officers and employees of (the state, or local jurisdiction, as applicable) charged with enforcement of (state or municipal law generally, or, specifically enumerated laws such as building codes) shall be relieved of all personal liability for all damage that may accrue to persons or property, and for all costs, including attorney's fees, reasonably necessary to defend against litigation resulting from any act required or permitted in the discharge of official duties and exercised in good faith without malice or intentional wrongdoing. Pursuant to this section, the (jurisdiction) may purchase insurance to indemnify itself, its officers, and its employees, from legal liability and defense costs. If insurance is not purchased or available, a suit instituted against an officer or employee for conduct arising out of the lawful discharge of official duties shall be defended by the (legal representative of the jurisdiction, e.g., city attorney) until the final termination of the proceedings, and the (jurisdiction) shall be liable for all costs reasonably necessary to defend such action and for all resulting judgments against the officers and employees based on the good faith discharge of said official duties."*

1.4 States or local jurisdictions that indemnify their employees usually purchase insurance for that purpose. In a small number of states, such purchase of insurance operates as a waiver of immunity. Therefore, the effect of purchasing insurance should be thoroughly investigated by appropriate legal counsel prior to its purchase.

1.5 States and local jurisdictions should avoid placing their employees in the position where the employee's liability is greater than that of the government for which he works. In such cases, the employee will be the sole target of any lawsuit, and the inhibiting effect of that exposure may be excessive and damaging to rehabilitation.

## 2. Specific Immunities for Code Enforcement Activities

**Problem:** In a large number of states, it is virtually impossible to tell whether negligent code enforcement activities give rise to individual liability, because it is unclear whether various protections given to code enforcement remain.

**Discussion:** A large number of states, perhaps the majority, may retain the common law rule known as the Public Duty Doctrine, which has generally prevented liability from being imposed on officials for any code enforcement function. But recent statutory abrogations of immunities in many states have left the vitality of the court-made doctrine in question. The doctrine itself, which provides immunity for acts performed in the course of a duty owed only to the public generically (rather than to a specific individual), is highly unpredictable in its effect on specific cases. Courts in Washington and Oregon have found exceptions to the rule and have imposed liability for negligent code enforcement; Alaska rejected the rule altogether for code enforcement.

Similarly, a legal doctrine - sometimes judicial, sometimes statutory - that provides immunity for all "governmental functions" has been held to immunize code enforcement officers. But it, too, is on the wane, and has been discarded in a number of jurisdictions.

A more stable and predictable means of immunizing code officials is needed.

### Recommendations:

2.1 States (and these municipalities with the legal authority to do so) should consider fully immunizing themselves, their subdivisions, and all public employees, from liability for negligence in code enforcement functions. The immunization would take the form of a specific statutory reservation of immunity for negligent inspection, negligent failure to inspect, negligent failure to enforce discovered violations, and negligent issuance or denial of permits.

Nine states have enacted such specific reservations of immunity, with some variation in their scope. They are California, Illinois, Indiana, Maine, Nevada, New Jersey, Oklahoma, Tennessee, and Utah.

None of these statutes has been declared invalid in court, but the issuance of a permit to an applicant who had failed to obtain statutorily required insurance created liability in California and in Oregon despite the existence of immunizing statutes in both states.

The following language is based on Cal. Gov. Code §§818.2, 818.4, and 818.6 (2.1.1, 2.1.2, and 2.1.3, respectively - governmental immunity); §§821.2, and 821.4 (2.1.4, 2.1.5, and 2.1.6, respectively - personal immunity):

2.1.1 "A public entity is not liable for an injury caused by adopting or failing to adopt an enactment or by failing to enforce any law."

2.1.2 "A public entity is not liable for an injury caused by the issuance, denial, suspension or revocation of, or by the failure or refusal to issue, deny, suspend or revoke, any permit, license, certificate, approval, order, or similar authorization where the public entity or an employee of the public entity is authorized by enactment to determine whether or not such authorization should be issued, denied, suspended or revoked."

2.1.3 "A public entity is not liable for injury caused by its failure to make an inspection, or by reason of making an inadequate or negligent inspection, of any property, other than its property (refer to statutory definition, if any), for the purpose of determining whether the property complies with or violates any enactment or contains or constitutes a hazard to health or safety."

2.1.4 "A public employee is not liable for an injury caused by his adoption of, or failure to adopt, an enactment, or by his failure to enforce an enactment."

2.1.5 "A public employee is not liable for an injury caused by his issuance, denial, suspension or revocation of, or by his failure or refusal to issue, deny, suspend, or revoke, any permit, license, certificate, approval, order, or similar authorization where he is authorized by enactment to determine whether or not such authorization should be issued, denied, suspended or revoked."

2.1.6 "A public employee is not liable for injury caused by his failure to make an inspection, or by reason of making an inadequate or negligent inspection, of any property, other than the property of the public entity employing the public employee (with reference to statutory definition of such property, if such definition exists), for the purpose of determining whether the property complies with or violates any enactment or contains or constitutes a hazard to health or safety."

### 3. Immunities for Elements of Code Enforcement Requiring the Exercise of Discretion

**Problem:** In jurisdictions granting immunity only for activities requiring the exercise of discretion, the extent to which code officials are liable is unclear, and liability may be unjustly imposed.

**Discussion:** A number of jurisdictions that have made their employees liable for negligence have nevertheless preserved employee immunity for functions that require the exercise of discretion. Of course, every act requires some discretion, and the courts have attempted to lend predictability to their decisions by drawing distinctions between the "planning" and "operational" levels, between "policy making" and "execution," and between "high" and "low" officers. The treatment the courts have given to various code enforcement functions has been mixed, and none of the foregoing approaches has decreased the level of uncertainty that is the source of the code official's fears.

The code enforcement activities most important to successful rehabilitation all involve the weighing of alternatives and the balancing of competing policies. The recommendations in this section attempt to relieve the uncertainty of code officials by ensuring that their discretionary activities will be treated as such in jurisdictions in which those functions are immune from liability.

#### Recommendations:

3.1 Building-related codes should include provisions emphasizing the elements of code enforcement that require the exercise of discretion. Such should include:

3.1.1 provisions spelling out the need for code officials to select from among competing compliance alternatives.

3.1.2 use of the work "discretion" in appropriate provisions, even though "waiver," "variance," and modification implicitly connote discretion.

3.1.3 statements of purpose emphasizing that rehabilitation is a goal of the code enforcement system, noting the discretion required of code officials if that goal is to be achieved.

4

See STATUTORY GUIDELINE FOR BUILDING REHABILITATION, Recommendation 1.

3.2 In consultation with appropriate state or municipal counsel, code enforcement agencies should develop recordkeeping systems that will demonstrate to judges and juries the degree and reasonableness of discretion exercised in code enforcement, particularly in the inspection and approval of rehabilitated buildings. Where practical, the records should show the manner in which competing interests are weighed in order to reach decisions in specific cases.

### 4. Reducing the Fear of Liability by Improving Agency Practices

**Problem:** Operating procedures of code enforcement agencies may inadequately provide the support services necessary to permit officials to deal confidently with the special problems of rehabilitation, thereby heightening individual fears of the liability that may result from a mistake in judgment.

**Discussion:** Even in jurisdictions that hold code enforcement officials liable for their negligence, that liability - and fear of it - can be substantially reduced by agency practices that prevent the official from acting negligently.

Those practices can involve the official directly by improving his training and by providing him with better field guidance. They can provide experts to whom the official can turn for advice in novel situations. If an official is sued, improved agency record-keeping practices can protect him from lapses in memory, personnel turnover in the agency, and the court's temptation to substitute its judgment for his. The very existence of improved management practices can to a great degree prevent the filing of weak or frivolous lawsuits.

In reducing the potential for negligent conduct, the government can also reduce the number of people injured by official negligence. In doing so, it can give code officials a new confidence that their activities are not - and will not be found - negligent, thereby encouraging latitude in official acceptance of novel solutions to the special code enforcement problems posed by rehabilitation.

#### Recommendations:

4.1 Develop, distribute, and require the use of detailed manuals for field personnel.

4.2 Improve the training of field personnel, particularly with respect to rehabilitation.

See also, STATUTORY GUIDELINE FOR BUILDING REHABILITATION, Recommendation 5.

## TABLE OF APPENDICES

APPENDIX	PAGE	TITLE
Appendix 1	A-2	High Rise Requirements Adopted by the California State Fire Marshal
Appendix 2	A-10	City of Los Angeles Stairway Enclosure Requirements for Hotels, Apartments and Similar Residential Buildings Exceeding Two Stories in Height
Appendix 3	A-14	City of Los Angeles Preliminary Draft of "Earthquake Hazard Reduction in Existing Buildings." Currently Being Considered for Adoption
Appendix 4	A-25	Appendix Chapter 12 of the 1979 Uniform Building Code, "Existing Buildings"
Appendix 5	A-28	Denver, Colorado
Appendix 6	A-35	Washington, D. C.
Appendix 7	A-57	San Francisco, California
Appendix 8	A-64	State of Massachusetts
Appendix 9	A-87	City of Los Angeles Rule of General Application on Structural Changes Required by Change of Occupancy
Appendix 10	A-90	State of California Seismic Safety Commission Draft Legislation Relating to Seismic Hazards
Appendix 11	A-94	Chapter 10, Official Electrical Code of the City of Detroit
Appendix 12	A-96	Format and Methodology for Developing a Local Rehabilitation Code, Regulations, or Guidelines

4.3 Improve the supervision of field personnel, not only from the standpoint of greater discipline, but also by making supervisors available to assist in approaching the problems of rehabilitation. This may in turn require continuing training and education for supervisors to increase their sophistication in dealing with rehabilitation.

See also, STATUTORY GUIDELINE FOR BUILDING REHABILITATION Recommendation 5.

## APPENDIX 1

High-Rise Requirements Adopted by  
The California State Fire Marshal

## (5) Amend Section 21.33, to read:

21.33. Existing High-Rise Buildings. Section B2133, Part 2, Title 24,

CAC, is hereby adopted as a part of these regulations and reads:

B2133. Existing High-Rise Buildings. For requirements relating

to existing high-rise buildings of Type IV construction see Section B1733 through Section B1747.

## (6) Amend Section 22.33, to read:

22.33. Existing High-Rise Buildings. Section B2233, Part 2 Title 24,

CAC, is hereby adopted as part of these regulations and reads:

B2233. Existing High-Rise Buildings. For requirements relating

to existing high-rise buildings of Type V construction, see Section

B1733 through Section B1747.

\*\*\*\*\*

These regulations will not cause a fiscal impact on any local agency or school district and will not therefore be a financial responsibility of the State pursuant to Section 2231 of the Revenue and Taxation Code.

## (1) Assignment of a responsible person as Fire Safety Director to

work with the fire authority in the establishment, implementation and maintenance of the emergency pre-fire plan.

(2) The telephone number of the local fire department shall be conspicuously posted in a location adjacent to the telephone in each dwelling unit, hotel guest room, telephone switchboard, and in other areas as directed by the fire authority having jurisdiction.

(3) Emergency plan procedures shall be conspicuously posted in each dwelling unit, hotel guest room, office area, and other locations as required by the fire authority having jurisdiction. Such procedures shall provide for the relocation or evacuation of building occupants.

(g) Compliance Date. Except as may be otherwise specified, existing high-rise buildings shall conform to the applicable requirements of these regulations by April 26, 1979.

## (2) Amend Section 18.33, to read:

18.33. Existing High-Rise Buildings. Section B1833, Part 2, Title 24,

CAC, is hereby adopted as a part of these regulations and reads:

B1833. Existing High-Rise Buildings. For requirements relating to existing high-rise buildings of Type I construction, see Section B1733 through Section B1747.

## (3) Amend Section 19.33, to read:

19.33. Existing High-Rise Buildings. Section B1933, Part 2, Title 24,

CAC, is hereby adopted as part of these regulations and reads:

B1833. Existing High-Rise Buildings. For requirements relating to existing high-rise buildings of Type II construction, see Section B1733 through B1747.

(4) Amend Section 20.33, to read:

20.33. Existing High-Rise Buildings. Section B2033, Part 2, Title 24,

CAC, is hereby adopted as a part of these regulations and reads:

B2033. Existing High-Rise Buildings. For requirements relating

to existing high-rise buildings of Type III construction, see Section B1733 through Section B1747.

Note:

The foregoing quoted Sections B1733 Through B1747 have been taken from Title 24, California Administrative

Code. The following subsections (b) through (g) are

non-building standards and are contained only in Title

19, California Administrative Code under section 17.33.

(b) Fire Hazards. No person shall permit any fire hazard to exist on premises under his or her control, or fail to take immediate action to abate a fire hazard when required by the enforcing agency.

"Fire Hazard" as used in this section means any condition, arrangement, or act which will increase, or may cause an increase of, the hazard or menace of fire to life safety to a degree greater than customarily recognized as normal by persons in the public service of preventing, suppressing or extinguishing fire.

(c) Plans and Specifications. (1) Complete plans or specifications, or both, shall be prepared covering all work required pursuant to this section. Such plans or specifications shall be submitted to the enforcing agency having jurisdiction.

(2) When new construction is required to conform with the provisions, of these regulations, complete plans or specifications, or both, shall be prepared in accordance with the new provisions of this subsection. As used in this section

"new construction" is not intended to include repairs, replacements or minor alterations which do not disrupt or appreciably add to or affect the structural aspects of the building.

(d) Flammable Liquids. The storage, handling and use of flammable liquids shall be in accordance with provisions of the Uniform Fire Code, 1973 Edition, as published by the Western Fire Chief's Association and the International Conference of Building Officials.

(e) Maintenance. All fire alarm, fire detection, automatic sprinkler systems, communication systems, and all other items or systems required by this section shall be maintained in an operable condition at all times. Upon disruption of any such system, immediate action shall be instituted to effect a reestablishment of such system to its normal operating condition.

(f) Emergency Pre-Fire Planning. Owners, Operators, tenants, administrators and managers of high-rise buildings shall in cooperation with the fire authority having jurisdiction, establish procedures which shall include but not necessarily be limited to the following:

B1745. Exit Signs and Illumination. Exits and exitways shall be provided with exit signs and illumination as required by Section B3312.

Exception: When acceptable to the enforcing agency, approved self-illuminating exit signs and directional signs may be used.

B1746. Automatic Sprinkler Systems - Existing High-Rise Buildings.

Regardless of any other provisions of these regulations, every existing high-rise building of Type III-N, Type IV-N or Type V-N construction shall be provided with an approved automatic sprinkler system conforming to NFPA 13, 1974.

B1747. Group H Occupancies - Existing High-Rise Buildings. (a)

General. Regardless of other provisions of these regulations relating to existing high-rise buildings, requirements relative to existing Group H Occupancy shall be not less restrictive than those established pursuant to Section 17920.7, Health and Safety Code. (See Chapter 13, Appendix UBC, 1970 Edition.)

(b) Exit Corridor Openings. Openings in corridor walls and ceilings shall be protected by not less than 1-3/4 inch solid bonded wood core doors, 1/4-inch thick wired glass conforming to Section 4306(h), UBC, by approved fire dampers conforming to SFM 43.2, or by equivalent protection in lieu of any of these items. Transoms shall be fixed closed with material having a fire-resistive rating equal to 1/2 inch, type X gypsum wallboard or equivalent material installed on both sides of the opening.

(c) Fire Alarm Systems. Notwithstanding the provisions of B1738, every existing Group H Occupancy shall have installed therein a fire alarm system conforming to this subsection.

(1) General. Every apartment house and every hotel shall have installed therein an automatic or manually operated fire alarm system. Such fire alarm systems shall be so designed that all occupants of the building may be warned simultaneously.

(2) Installation. The installation of all fire alarm equipment shall be in accordance with Part 3.

(3) Fire Extinguishing Systems. Automatic fire extinguishing system installed in any structure subject to these regulations shall have an approved flow indicator electrically interconnected to the required fire alarm system.

B1741. Interior Wall and Ceiling Finish.

Interior wall and ceiling finish of exitways shall conform to the provisions of Chapter B42. Where the materials used in such finishes do not conform to the provisions of Chapter B42, such finishes may be surfaced with an approved fire-retardant coating.

Floor covering materials having a pile or nap shall not be used as an interior wall or ceiling finish.

B1742. Ventilation. Natural or mechanical ventilation for the removal of products of combustion shall be provided in every story of an existing high-rise building. Such ventilation shall be any one or combustion of the following:

(a) Panels or windows in the exterior wall which can be opened.

Such venting facilities shall be provided at the rate of at least 20 square feet of opening per 50 lineal feet of exterior wall in each story, distributed around the perimeter at not more than 50 foot intervals on at least two sides of the building.

(b) Approved fixed tempered glass may be used in lieu of openable panels or windows. When only selected panels or windows are of tempered glass they shall be clearly identified as required by the enforcing agency.

(c) Any other design which will produce equivalent results.

B1743. Smoke Control Systems. Existing air circulation systems shall be provided with an override switch in a location approved by the enforcing agency which will allow for the manual control or shut-down of the systems.

Exception: Systems which serve only a single floor, or portion thereof, without any penetration by ducts or other means



into adjacent floors.

B1744. Sensing Devices - Elevators. Sensing devices for emergency operation of elevators shall be provided as required by Section 3041, Title 8, California Administrative Code.

Exception: Sensing devices required by Section B1744 shall be SFM approved and listed detectors of the type which respond to visible or invisible particles of combustion based upon a smoke obscuration of 0.03 optical density per foot or more at ceiling height or at an elevation of 12 feet, whichever is lower, at the elevator entrance.

(e) Systems Interconnection. When a automatic fire detection system or an automatic extinguishing system is installed, activation of such system shall automatically cause the sounding of the fire warning system signaling devices at locations designated by the enforcing agency.

(f) Manual Sending Stations. Except as provided in Section B1747(c), manual fire alarm stations shall be provided in the locations designated by the enforcing agency. Such locations, shall be where stations are readily accessible and visible and in normal paths of daily travel by occupants of the building but need not exceed that specified in Part 3 of the distribution of manual sending stations.

(g) Wiring. Approved and listed TFE cables may be installed exposed or concealed without the use of raceways. Such exposed cables shall not be installed less than seven feet from the floor and when passing through fire-resistive construction shall have their penetrations protected in such a manner as to retain the integrity of the fire-resistive construction.

Exception: Previously installed fire alarm wiring in good condition and adequate for the system's electrical requirements may be accepted.

B1739. Occupant Voice Notification System. An approved occupant voice notification system shall be provided in every existing high-rise building which exceeds 150 feet in height measured in the manner set forth in Section B1733. Such system shall provide communication from a location available to and designated by the enforcing agency to not less than all public areas.

The occupant voice notification system may be combined with a fire alarm system provided the combined system has been approved and listed by the State Fire Marshal. The sounding of a fire alarm signal in any given area or floor shall not prohibit voice communication to other areas or floors. Combination systems shall be designed to permit voice transmission to override the fire alarm signal shall not terminate in less than 3 minutes.

B1740. Fire Department System. When it is determined by test that portable fire department communication equipment is ineffective, a communication system acceptable to the enforcing agency shall be installed within the building to permit emergency communication between fire suppression personnel.

B1738. Fire Warning Systems. (a) General. Every existing high-rise building shall be provided with an approved fire warning system.

In department stores, retail sales stores, and similar occupancies, where the general public is admitted, such systems shall be of a type to alert staff and employees. In office buildings and all other high-rise

buildings, such systems shall be of a type capable of alerting all occupants simultaneously.

Exceptions: (1) In areas of public assemblage, the type and location of audible devices shall be as determined by the enforcing agency.

(2) When acceptable to the enforcing agency, the occupant voice notification system required by Section B1739 may be used in lieu of the fire warning system required by Section B1738.

(b) Existing Systems. Existing fire warning systems, when acceptable to the enforcing agency, shall be deemed as conforming to the provisions of these regulations. For requirements for existing Group H Occupancies, see Section B1747(c).

(c) Annunciation. When a new fire alarm system is installed, it shall be connected to an annunciator panel installed in a location by the enforcing agency.

For purposes of annunciation, zoning shall be in accordance with the following:

- (A) When the system serves more than one building, each building shall be considered as a separate zone.
- (B) Each floor shall be considered as a separate zone.

Exception: Selective coded systems need not conform to Sections (A) and (B).

(b) Fire Department Notification. There shall be provided a dependable method of notifying the fire department.

(c) Protection of Exterior Openings. When an existing fire escape

is accepted as one of the required means of egress, openings onto the fire escape landing and openings within 5 feet horizontally of the landing shall be protected in a manner acceptable to the enforcing agency. (See Section B1733(d)).

(d) Locking of Stairway Doors. When exit doors from corridors to exit stairways are locked to prohibit access from the stairway side, conformance with Section B1807(i) shall be provided or, in lieu thereof, master keys which will unlock all such doors from the stairway side shall be provided in such numbers and locations as approved by the enforcing agency.

B1737. Vertical Shafts. (a) Enclosures. Interior vertical shafts, including but not limited to, elevator, stairway and utility shall be enclosed with construction as set forth in Section B1735.

(b) Opening Protection. Doors in other than elevators, which shall be of a type acceptable to the enforcing agency, shall be approved one-hour fire rated tight fitting or gasketed doors, or equivalent protection, and shall be of the normally closed type, self-closing, or of a type which will close automatically in accordance with Section 4306(b)(2).

Exception: In lieu of stairway enclosures, smoke barriers may be provided in such a manner that fire and smoke will not spread to other floors or otherwise impair exit facilities.

In these instances, smoke barriers shall be not less than one-hour fire resistive with openings protected by not less than approved 1/3-hour fire-rated tight fitting or gasketed doors. Such doors shall be of self-closing type or of a type which will close automatically

In the manner specified in Section 4306(b)(2). Doors crossing corridors shall be provided with wired glass vision panels set in approved steel frames.

Doors for elevators shall not be of the open grill type.

Note: It is the intent of this provision that existing wood frames may have their use continued.

(b) New Construction. All new construction shall be composed of materials and assemblies of materials conforming to the fire-resistive provisions of these regulations. In no case shall enclosure walls be required to be of more than one-hour fire-resistive construction.

Exception: When approved by the enforcing agency, materials specified Section B1735 (a) may be used for new construction when necessary to maintain continuity of design and measurement of existing construction.

B1736. Exits. (a) General. Every floor from an existing high-rise building shall have access to two separate means of egress, one of which, when approved by the enforcing agency, may be an existing exterior fire escape.

New installations of smoke proof enclosures shall not be required.

Note: In determining the adequacy of exits and their design,

Chapter B33 may be used as a guide. It is the intent of this Section that every existing high-rise building need not mandatorily conform or be made to conform with the requirements for new high-rise buildings. Reasonable judgment in the application of requirements must be exercised by the enforcing agency.

(b) Fire Escapes. An existing fire escape in good structural condition

may be acceptable as one of the required means of egress from each floor. Access to such fire escapes may be any one of the following:

- (1) Through a room between the corridor and the fire escape if the door to the room is operable from the corridor side without the use of any key, special knowledge or effort.
- (2) By a door openable to a fire escape from the interior without the use of any key, special knowledge or effort.
- (3) By a window operable from the interior. Such window shall have a minimum dimension of 29 inches when open. The sill shall be not more than 30 inches above the floor and landing.

For the purpose of this section, construction shall be deemed to have commenced when plans and specifications are more than 50 percent complete and have been presented to the local jurisdiction prior to July 1, 1974. Actual construction of such buildings shall commence on or before January 1, 1976, unless all provisions for new buildings have been met.

(b) Compliance Date. Except as may be otherwise specified, existing high-rise buildings shall conform to the applicable requirements of these regulations by April 26, 1979.

(c) Continued Use. Existing high-rise buildings may have their use continued if they conform, or are made to conform, to the intent of the provisions of Section B1734 through B1747 to provide for the safety of the occupants of the high-rise buildings and persons involved in fire suppression activities.

(d) Alternate Protection. In addition to the provisions of Section B306, alternate means of egress, fire resistive area separations, smoke barriers, automatic fire detection or fire extinguishing systems, or other fire protection devices, equipment or installations may be approved by

the enforcing agency to provide reasonable and adequate life safety as intended by Sections B1734 through B1747 for existing high-rise buildings.

B1734. General. Basic Provisions. The provisions outlined in Sections B1734 through B1747 are applicable to every existing high-rise building.

B1735. Construction. (a) Minimum Construction. Existing wood lath and plaster, existing 1/2-inch gypsum wallboard, existing installations of 1/4 inch thick wired glass which are or are rendered inoperative and fixed in a closed position, or other existing materials having similar fire-resistive capabilities shall be acceptable. All such assemblies shall be in good repair, free of any condition which would diminish their original fire-resistive characteristics.

Where 1-3/4 inch solid bonded wood core doors are specified in these regulations for existing high-rise buildings, new or existing 1-3/8 inch doors shall be acceptable where existing framing will not accommodate a 1-3/4 inch door.

(1) Amend Section 17.33, to read:

17.33. Existing High-Rise Buildings. (a) General. Existing high-rise buildings shall conform to the provisions of Section B1733 through Section

B1747, Part 2, Title 24, CAC which are hereby adopted by reference, are printed in italics and read as follows:

B1733. Existing High-Rise Buildings. (a) Scope and Definition.

The provisions of Sections B1733 through B1747 shall apply to every existing high-rise building of any type of construction or occupancy having floors (as measured from the top of the floor surface) used for human occupancy located more than 75 feet above the lowest floor level having building access.

Exceptions: (1) Hospitals as defined in Section 1250 of the Health and Safety Code.

(2) Buildings owned by any local agency or school district.

(3) Buildings such as power plants, look-out towers, steeples, grain houses and similar structures with non-continuous human occupancy, when so determined by the enforcing agency.

For the purpose of this section, "building access" shall mean an exterior door opening conforming to all of the following:

(1) Suitable and available for fire department use.

(2) Located not more than 2 feet above the adjacent ground level. When located more than 2 feet above the adjacent ground level measurement shall be taken from the floor surface of the story or basement immediately below.

(3) Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.

(4) Designed to permit penetration through the use of fire department forcible entry tools and equipment unless other approved arrangements have been made with the enforcing agency having jurisdiction.

"Existing high-rise structure" means a high-rise structure, the construction of which is commenced or completed prior to July 1, 1974.

## APPENDIX 2

City of Los Angeles Stairway  
Enclosure Requirements for Hotels,  
Apartments and Similar Residential  
Buildings Exceeding Two Stories in  
Height

Ordinance No. 142,713

An Ordinance amending the Los Angeles Municipal Code.

THE PEOPLE OF THE CITY OF LOS ANGELES

DO ORDAIN AS FOLLOWS:

Section 1. Section 91.0103 of the Los Angeles Municipal code is hereby amended by adding Subsection (p) thereto, said new subsection to read:

(p) Fire Safety in Existing Group H Occupancies.

1. Notification. Whenever the Department determines by inspection that a building does not conform to the minimum requirements of Section 91.1302 of this Code, it shall order that such building be repaired and modified so as to conform to such minimum requirements. The order shall be in writing and shall be served either personally or by certified or registered mail upon the owner as shown on the last equalized assessment roll and upon the person, if any, in real or apparent charge or control of the building.

The order shall specify in what manner the subject building falls to meet the minimum requirements of Section 91.1302 of this Code and shall direct that necessary corrections shall be made within four years after service thereof.

2. Recordation. At the time that the Department serves the aforementioned order, the Superintendent of Building shall file with the Office of the County Recorder a certificate stating that the subject

building does not meet the minimum fire safety requirements of Section 91.1302 of this Code, and that the owner thereof has been so notified.

After all necessary corrective work has been performed, the Superintendent of Building shall file with the Office of the County Recorder a certificate terminating the status of the subject building as nonconforming to the minimum fire safety requirements of Section 91.1302.

3. Enforcement. If the owner or other person in charge and control of the subject building fails to comply with the aforementioned order within four years, the Superintendent of Building shall order that the building be vacated and that the building remain vacated until all required corrective work has been completed. Whenever compliance with the correction order issued pursuant to the provisions of this subsection has not been accomplished within 90 days after the date the building has been ordered vacated, or such additional time as may have been granted by the Department or the Board, the Superintendent may order its demolition in accordance with the provisions of Subsection (c) of this Section.

Sec. 2. The Los Angeles Municipal Code is hereby amended by adding Section 91.1302 thereto, said new section to read:

SEC. 91.1302. FIRE SAFETY STANDARDS FOR EXISTING GROUP H OCCUPANCIES.

(a) Purpose. The purpose of this section is to provide a reasonable degree of fire safety for persons living and sleeping in apartment houses, hotels, and apartment hotels by requiring alterations to such existing buildings which do not conform to the minimum existing, shaft enclosure and corridor protection requirements of this Code.

(b) Scope. The provisions of this section apply to all existing

buildings more than two stories in height which contain Group H Occupancies. The provisions of the section shall not authorize the modification of existing building or portions thereof which provide a greater degree of protection against fire than the minimum requirements established by this section.

(c) Corridor Walls and Openings. The walls of every public corridor shall be protected by one-hour fire resistive construction, provided however, that existing walls constructed of wood lath and plaster and which are in good condition, will be acceptable in lieu thereof.

Transoms and openings other than doors from public corridors to guest rooms and dwelling units shall be closed and solidly covered with material which will provide the same degree of fire resistiveness as shall be provided by adjacent corridor walls.

All door openings from public corridors to guest rooms and dwelling units shall provide the same degree of fire resistiveness as shall be provided by adjacent corridor walls.

(d) Shaft Enclosures. All stairwells shall be enclosed in an approved shaft enclosures, provided however, that existing enclosure walls constructed of wood lath and plaster which is in good condition will be accepted in lieu of approved shaft wall construction.

#### EXCEPTIONS:

1. In building erected prior to January 1, 1943, stair-shaft enclosures may be omitted if all stairways, hallways, exitways and closet or storage areas adjacent thereto are sprinklered. No basement sprinklers will be required by reason of this exception where none exist if one-hour fire resistive partitions with 1 3/4 inch selfclosing solid core doors are provided so that a fire originating in the basement cannot spread directly to any

adjoining floor or story. Portions of a building containing occupancies other than Group H Occupancies need not be sprinklered by reason of this exception provided all such portions are separated from the Group H Occupancies by conforming occupancy separation walls and floors.

2. In buildings erected prior to January 1, 1943, stairshaft enclosures may be omitted if one-hour fire resistive partitions with 1 3/4 inch self closing solid core doors are placed in all stairwell openings so that a fire originating on any floor or story cannot spread directly to any adjoining floor or story; and provided further that a low voltage fire warning system acceptable to the Fire Department is installed throughout the building in connection with the installation of fire resistive partitions.

#### (e) Existing Conditions.

1. Existing means of exit, including fire escapes, are acceptable where they exist in the required number and are maintained in good condition.
2. No standpipes will be required where none exists.
3. No emergency exitway illumination will be required where none exists.
4. Dead end corridors not over twenty feet in length may have access to a second exit through a stairshaft enclosure.

Sec. 3. Subsection (h) of Section 91.4912 of the Los Angeles Municipal Code is hereby amended by adding an exception thereto, said new exception to read:

#### EXCEPTION:

Emergency exitway illumination shall not be required in an apartment house or hotel erected for such use prior to

January 1, 1943.

Sec. 4. Subsection (a) of Section 91.4917 of the Los Angeles Municipal Code is hereby amended by repealing Exception 1 thereof.

Sec. 5. The exception to Subsection (a) of Section 91.4925 of the Los Angeles Municipal Code is hereby amended to read:

**EXCEPTION:**

Fire protection alarms, if nonexistent, shall not be required in an apartment house or hotel erected for such use prior to September 19, 1947, unless required to comply with the provisions of Section 91.1302 of this Code.

Sec. 6. Exception 1 of Subsection (a) of Section 91.4923 of the Los Angeles Municipal Code is hereby amended to read:

1. An automatic sprinkler system, if nonexistent, shall not be required in an apartment house or hotel erected for such use prior to September 19, 1947, unless such system is required by Section 91.1603 (g) of this Code or unless required to comply with the provisions of Section 91.1302 of this Code.

Sec. 7. The exception to Subsection (a) of Section 91.4926 of the Los Angeles Municipal Code is hereby amended to read:

Dry standpipes, if nonexistent, shall not be required in an apartment house or hotel erected for such use prior to January 1, 1943.

Sec. 8. The exception to Subsection B of Section 57.121.06 of the Los Angeles Municipal Code is hereby amended to read:

Fire alarm or fire warning systems, if nonexistent, shall not be required in habitational occupancies erected for such use prior to September 19, 1947, unless required to comply with the provisions

of Section 91.1302 of this Code.

Sec. 9. The City Clerk shall certify to the passage of this ordinance and cause the same to be published in some daily newspaper printed and published in the City of Los Angeles.

I hereby certify that the foregoing ordinance was passed by the Council of the City of Los Angeles, at its meeting of November 9, 1971.

## APPENDIX 3

City of Los Angeles Preliminary Draft of "Earthquake Hazard Reduction in Existing Buildings," Currently Being Considered for Adoption

## PRELIMINARY DRAFT

AS APPROVED BY THE

## EARTHQUAKE SAFETY STUDY COMMITTEE

November 9, 1978

DIVISION 68 — EARTHQUAKE HAZARD REDUCTION INEXISTING BUILDINGSSECTION 91.6801 PURPOSE:

The purpose of this Division is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on unreinforced masonry bearing wall buildings constructed before 1934. Such buildings have been widely recognized for their sustaining of life hazardous damage as a result of partial or complete collapse during past moderate to strong earthquakes.

The provisions of this Division are minimum standards for structural seismic resistance established primarily to reduce the risk of life loss or injury and will not necessarily prevent loss of life or injury or prevent earthquake damage to an existing building which complies with these standards. This Division shall not require existing electrical, plumbing, mechanical or fire safety systems to be altered unless they constitute a hazard to life or property.

This Division provides systematic procedures and standards for identification and classification of unreinforced masonry bearing wall buildings based on

their present use.

Priorities and standards are also established under which these buildings are required to be structurally analyzed. Where the analysis or testing determines deficiencies, this Division requires the building to be strengthened or demolished.

**SECTION 91.6802 SCOPE:** The provisions of this Division shall apply to all existing buildings constructed or under construction prior to October 6, 1933, which on the effective date of this ordinance have unreinforced masonry bearing walls as defined herein.

**EXCEPTION:** This Division shall not apply to detached dwellings and detached apartment houses containing less than five dwelling units.

**SECTION 91.6803 DEFINITIONS:** For the purpose of this Division, certain terms are defined in Sections 91.2301, 91.2305 and as follows:

**ESSENTIAL BUILDINGS:** Those structures or buildings which are to be used for emergency purposes after an earthquake in order to preserve the peace, health and safety of the general public.

Such facilities shall include the following: hospitals and other medical facilities having surgery or emergency treatment areas; fire and police stations; municipal government disaster operation centers; and public utility and communication buildings deemed to be vital in emergencies.

**HIGH RISK BUILDINGS:** Any building, other than an essential building, having an occupant load as determined by Section 91.3301 (d) of 100 occupants or more, wherein the occupancy is used for its intended purpose for more than 20 hours per week.

**EXCEPTION:** High-risk buildings shall not include buildings having exterior walls braced with masonry cross walls or wood frame cross walls spaced less than



40 feet apart in each story.

**LOW RISK BUILDINGS:** Any building, other than an essential building, having an occupant load as determined by Section 91.3301 (d) of less than 20 occupants.

**MEDIUM RISK BUILDINGS:** Any building having an occupant load as determined by Section 91.3301 (d) of 20 occupants or more that is not classified as a high risk building or an essential building.

**UNREINFORCED MASONRY BEARING WALL:** A masonry wall having

all of the following characteristics:

1. Provides the vertical support for a floor or roof.
2. The total superimposed load is over 100 pounds per linear foot.
3. The area of reinforcing steel is less than 50 percent of that required by Section 91.2418 (e) of this code.

#### SECTION 91.6804 RATING CLASSIFICATIONS:

(a) **CLASSIFICATIONS:** The rating classifications as exhibited in Table No. 68-A are hereby established and each building within the scope of this Division shall be placed in one such rating classification by the department. The total occupant load as determined by Section 91.3301 (d) of the entire building shall be used to determine the rating classification.

TABLE NO. 68-A  
RATING CLASSIFICATIONS

TYPE OF BUILDING	CLASSIFICATION
Essential Buildings	I
High Risk Buildings	II
Medium Risk Buildings	III
Low Risk Buildings	IV

(b) **MULTIPLE CLASSIFICATIONS.** For the purpose of determining

a Rating Classification, a building housing occupancies resulting in more than one rating classification shall be classified in the Rating Classification which is the most restrictive.

**EXCEPTION:** For the purposes of this Division, portions of buildings constructed to act independently when resisting seismic forces may be classed in separate rating classifications.

#### SECTION 91.6805 ADMINISTRATION:

(a) **PRIORITY OF NOTIFICATION:** Notification priorities for buildings within the scope of this Division shall be in accordance with the rating classifications determined for the buildings from Table No. 68-A. Buildings having a rating classification of I shall be notified first; buildings having a rating classification of II shall be notified second, but not earlier than six months after the effective date of this Division; buildings having a rating classification of III shall be notified third, but not earlier than 18 months after the effective date of this Division; and buildings having a rating classification of IV shall be notified last, but not earlier than five years after the effective date of this Division. Within each separate Rating Classification, the notification shall normally be based on the occupant load of the building, with the buildings housing larger occupant loads being notified first: The Department shall, upon receipt of a written request from the owner, order a building to comply with this Division prior to the normal notification date set forth in this Section.

(b) **NOTIFICATION:** Following the priorities listed in Subsection 91.6805 (a), the Department shall order the owner of each building within the scope of this Division to cause a structural analysis to be made of the building by a licensed civil or structural engineer or architect. If the building is found to be deficient in meeting the requirements of this Division, the owner shall cause

it to be structurally altered so as to conform to such requirements or be demolished. The order shall be in writing and shall be served either personally or by certified or registered mail upon the owner as shown in the last equalized assessment roll, and upon the person, if any, in apparent charge or control of the building.

The order shall direct that the structural analysis and the structural strengthening plans, if required, be submitted to the Department for review within 270 days after service of the order. If the owner elects to demolish the building, a statement declaring an intention to demolish shall be submitted to the Department within 270 days after service of the order.

The order shall specify that permits required to demolish the building or accomplish the necessary structural alterations shall be obtained no later than one year after the service of the order, the necessary alterations or demolition must commence within 180 days of the date that the permit was issued and that the building be corrected to meet the minimum requirements of this Division or be demolished no later than three years after such service.

**(c) APPEAL FROM ORDER:** Within 180 days of the service of the order described in Subsection 91.6805 (b), the owner or person if any, in apparent charge or control of the building may appeal the Department's initial order and determination to the Board of Building and Safety Commissioners in accordance with procedures established in Section 98.0403 of the Los Angeles Municipal Code. Any such appeal shall be decided by the Board no later than 60 days after the date that the appeal is filed.

**(d) RECORDATION:** At the time that the Department serves the aforementioned order, the Superintendent of Building shall file with the Office

of the County Recorder a certificate stating that the subject building is within the scope of Division 68, Earthquake Hazard Reduction in Existing Buildings - of the Los Angeles Municipal Code. The certificate shall also state that the owner thereof has been notified and has been ordered to structurally analyze the building and to structurally strengthen or demolish it where compliance within Division 68 is not exhibited.

If the building is either demolished, found not to be within the scope of this Division, or is structurally capable of resisting minimum seismic forces required by this Division as a result of structural alterations or an analysis, the Superintendent of Building shall file with the Office of the County Recorder a certificate terminating the status of the subject building as being classified within the scope of Division 68 - Earthquake Hazard Reduction in Existing Buildings in the Los Angeles Municipal Code.

**(e) ENFORCEMENT:** If the owner or other person in charge and control of the subject building fails to comply with the order within any of the time periods set forth in Section 91.6805 (b) the Superintendent of Building shall order that the entire building be vacated and that the building remain vacated until all required analysis and structural alterations have been completed. Whenever compliance with the aforementioned order issued pursuant to the provisions of this Division has not been accomplished within 90 days after the date the building has been ordered vacated, or such additional time as may have been granted by the Board, the Superintendent may order its demolition in accordance with the provisions of Section 91.0103 (o).

#### SECTION 91.6806 ANALYSIS AND DESIGN:

**(a) GENERAL:** Every structure within the scope of this Division

shall be analyzed and constructed to resist minimum total lateral seismic forces assumed to act nonconcurrently in the direction of each of the main axis of the structure in accordance with the following equation:

$$V = IKCSW \quad (68-1)$$

The value of IKCS need not exceed the values set forth in Table No. 68-B based on the applicable rating classification of the building.

TABLE NO. 68-B  
HORIZONTAL FORCE FACTORS BASED ON  
RATING CLASSIFICATION

RATING CLASSIFICATION	IKCS
I	0.186
II	0.133
III & IV	0.100

(b) LATERAL FORCES ON ELEMENTS OF STRUCTURES: Parts or portion of structures shall be analyzed and designed for lateral loads in accordance with Section 91.2305 (d), but need not be more than the value from the following equation:

$$F_p = IC_s W_p \quad (68-2)$$

For the provisions of this subsection, the product of  $IS$  need not exceed the values as set forth in Table No. 68-C.

EXCEPTION: Unreinforced masonry walls in buildings not having a rating classification of I may be analyzed in accordance with Section 91.6807.

TABLE NO. 68-C  
HORIZONTAL FORCE FACTORS "IS"  
FOR PARTS OR PORTIONS OF STRUCTURES

RATING CLASSIFICATION	IS
I	1.50
II	1.00
III & IV	0.75

(c) ANCHORAGE AND INTERCONNECTIONS: Anchorage and interconnection of all parts, portions and elements of the structure shall be analyzed and designed for lateral forces in accordance with Table No. 23-B and the equation  $F_p = IC_s W_p$  as modified by Table No. 68-C. Minimum anchorage of masonry walls to each floor or roof shall resist a minimum force of 200 pounds per lineal foot acting normal to the wall at the level of the floor or roof.

(d) LEVEL OF REQUIRED REPAIR: Alterations and repairs required to meet the provisions of this Division shall comply with all other applicable requirements of this Code unless specifically provided for in this Division.

#### (c) REQUIRED ANALYSES:

1. GENERAL: Except as modified herein, the analysis and design relating to the structural alteration of existing structures within the scope of this Division shall be in accordance with the analysis specified in Division 23.

2. CONTINUOUS STRESS PATHS: A complete, continuous stress path from every part or portion of the structure to the ground shall be provided for the required horizontal forces.

3. POSITIVE CONNECTIONS: All parts, portions or elements of the structure shall be interconnected by positive means.

#### (i) ANALYSIS PROCEDURES:

1. GENERAL: Stresses in materials and existing construction utilized to transfer seismic forces from the ground to parts or portions of the structure

resisting elements are due to a combination of dead loads plus live loads plus seismic loads, the allowable working stress specified in the Code may be increased 100 percent. However, no increase will be permitted in the stresses allowed in Section 91.6807 of this Division and the stresses in members due only to seismic and dead loads shall not exceed the values permitted by Section 91.2301 (g).

3. ALLOWABLE REDUCTION OF BENDING STRESS BY VERTICAL LOAD: In calculating tensile fiber stress due to seismic forces required by this Division, the maximum tensile fiber stress may be reduced by the full direct stress due to vertical dead loads.

#### SECTION 91.6807 MATERIALS OF CONSTRUCTION:

(a) GENERAL: All materials permitted by this Code including their appropriate allowable stresses and those existing configurations of materials specified herein may be utilized to meet the requirements of this Division.

#### (b) EXISTING MATERIALS:

1. UNREINFORCED MASONRY WALLS: Unreinforced masonry walls analyzed in accordance with this section may provide vertical support for any roof and floor construction and resistance to lateral loads. The bonding of such walls shall be as specified in Section 91.2412 (b).

Tension stresses due to seismic forces normal to the wall may be neglected if the wall does not exceed the height or length to thickness ratio and the in-plane shear stresses due to seismic loads as set forth in Table No. 68-D

TABLE NO. 68-D  
ALLOWABLE VALUE OF UNREINFORCED WALLS  
WITH MINIMUM QUALITY MORTAR

shall conform to those permitted by the Code and those materials and types of construction specified in Section 91.6807.

2. CONNECTIONS: Materials and connectors used for interconnection of parts and portions of the structure shall conform to the Code.

3. UNREINFORCED MASONRY WALLS: Unreinforced masonry walls shall be analyzed to insure their capability of resisting superimposed vertical loads in addition to the seismic forces required by this Division. The 50 percent increase in the seismic force factor for shear walls as specified in Table No. 24-H may be omitted in the computation of seismic loads to existing shear walls.

Allowable stresses in such walls shall be obtained by tests utilizing values established by laboratory testing as specified in Section 91.6807 (e), however, no allowable tension stress will be permitted. Walls not capable of resisting the applied loads shall be strengthened to resist the forces specified in this Division or shall be removed and replaced.

#### EXCEPTIONS:

1. Unreinforced masonry walls in buildings not classified as a Classification Rating I may be analyzed in accordance with Section 91.6807.

2. Unreinforced masonry walls which carry no design loads other than its own weight may be considered as veneer if they are adequately anchored to new supporting elements.

#### (c) COMBINATION OF LOAD EFFECTS:

1. NEW MATERIALS: Combination of load effects shall conform to the Code for all new materials introduced into the building structure to meet the requirements of this section.

2. EXISTING MATERIALS: When stress in existing lateral force

UNSUPPORTED RATING CLASSIFICATION	MAXIMUM RATIO SEISMIC IN-PLANE HEIGHT OR LENGTH TO THICKNESS	SHEAR STRESS BASED ON GROSS AREA	
		Not Applicable <sup>2</sup>	Not Applicable <sup>2</sup>
I	9	3 psi <sup>2</sup>	3 psi <sup>2</sup>
II	10	3 psi <sup>3</sup>	3 psi <sup>3</sup>
III	12	3 psi <sup>3</sup>	3 psi <sup>3</sup>
IV			

NOTES: <sup>1</sup>Minimum quality mortar shall be determined by laboratory testing in accordance with Section 91.6807 (e).

<sup>2</sup>Walls of buildings within rating classification I shall be analyzed in accordance with Section 91.6806 (f).

<sup>3</sup>Allowable shear stress may be increased in accordance with Section 91.6807 (g).

The wall height or length may be measured horizontally to supporting elements providing the stiffness of the supporting member is at least twice as stiff as the tributary wall. Stiffness shall be based on the gross section.

## 2. EXISTING ROOF, FLOORS, WALLS, FOOTINGS, AND WOOD

FRAMING: Existing materials including wood shear walls utilized in the described configuration may be used as part of the lateral load resisting system, provided that the stresses in these materials do not exceed the values shown in Table No.

68-E.

TABLE NO. 68-E  
VALUES FOR EXISTING MATERIALS

### MATERIALS<sup>1</sup>

### ALLOWABLE VALUES

#### I. HORIZONTAL DIAPHRAGMS

- Roofs with straight sheathing and roofing applied directly to the sheathing. 150 lbs. per foot for seismic shear.
- Roofs with diagonal sheathing and roofing applied directly to the sheathing. 400 lbs. per foot for seismic shear.

- Floors with straight tongue and groove sheathing. 150 lbs. per foot for seismic shear.
  - Floors with straight sheathing sheathing and finished wood flooring. 300 lbs. per foot for seismic shear.
  - Floors with diagonal sheathing and finished wood flooring. 400 lbs. per foot for seismic shear.
  - Floors or roofs with straight sheathing and plaster applied to the joist or rafters. Add 50 lbs. per foot to materials la and lc.
2. SHEAR WALLS
- Wood stud walls with wood lath and plaster. 50 lbs. per foot each side for seismic shear.
  - Wood stud walls with plaster and lath other than wood lath. 100 lbs. per foot each side for seismic shear.
3. PLAIN CONCRETE FOOTINGS shown
- $f'_c = 1500$  psi unless otherwise by tests.
- Allowable stress same as
4. DOUGLAS FIR WOOD No. 1 D.F.
5. REINFORCING STEEL inch maximum.
- $f_t = 20,000$  lbs. per square
6. STRUCTURAL STEEL inch maximum.
- $f_t = 20,000$  lbs. per square

Notes: <sup>1</sup>Material must be sound and in good condition.

<sup>2</sup>The wood lath and plaster must be reattached to existing joists or rafters in a manner approved by the Department.

### (c) STRENGTHENING OF EXISTING MATERIALS

New materials including wood shear walls may be utilized to strengthen portions of the existing seismic resisting system in the described configurations provided that the stresses do not exceed the values shown in Table No. 68-F.

TABLE NO. 63-F  
ALLOWABLE VALUES OF NEW MATERIALS USED IN  
CONJUNCTION WITH EXISTING CONSTRUCTION

NEW MATERIALS

HORIZONTAL DIAPHRAGMS

Plywood sheathing applied directly straight sheathing with ends of plywood sheets bearing on joists or rafters and edges of plywood located on center of individual sheathing boards.

SHEAR WALLS

- a. Plywood sheathing applied directly over existing wood studs. No value shall be given to plywood applied over existing plaster or wood sheathing.
- b. Dry wall or plaster applied directly over existing wood studs.
- c. Dry wall or plaster applied to plywood sheathing over existing wood studs.

Shear bolts and shear dowels embedded a minimum of 8 inches into unreinforced masonry walls. Bolt centered in a 2-1/2-inch diameter hole with dry pack or nonshrink grout around circumference of bolt or dowel.

Tension bolts and tension dowels extending entirely through unreinforced masonry walls secured with bearing plates on far side of wall with at least 30 square inches of area.

Reinforced masonry infilled openings in existing unreinforced

ALLOWABLE VALUES

Same as specified in Table over existing 25-J for over blocked diaphragms.

Same as values specified in Table 25-J for shear walls.

75 percent of the values specified in Table 25-N.

33-1/3 percent of the values specified in Table 25-N.

100 percent of the values for plain masonry specified in Table 24-F. No values larger than those given for 3/4-inch bolts shall be used.

1200 lbs. per bolt or dowel.

Same as values specified for unreinforced masonry wall.

masonry walls with dowels to match reinforcing.

6. Masonry piers and walls reinforced per Section 91.2418 and designed for tributary loads. Same as values specified in Table 24-G.

7. Concrete footings, walls and piers reinforced as specified and designed for tributary loads. Same as values specified in Division 26.

8. Foundation pressures for structures exhibiting no evidence of settlement. Calculated existing foundation pressures due to maximum load plus live load may be increased 25% for dead load, and may be increased 50% for dead load plus seismic load required by this Division.

NOTES: <sup>1</sup> Bolts and dowels to be tested as specified in Section 91.6807 (f).

<sup>2</sup> Bolts and dowels to be 1/2-inch minimum in diameters.

(d) ALTERNATE MATERIALS: Alternate materials and methods

of construction may be approved by the Department in accordance with the provisions of Article 8, Chapter 9 of the Los Angeles Municipal Code.

(e) MINIMUM ACCEPTABLE QUALITY OF EXISTING UNREINFORCED

MASONRY WALLS:

1. GENERAL PROVISIONS: All unreinforced masonry walls utilized to carry vertical loads and seismic forces parallel and perpendicular to the wall plane shall be tested as specified in this section. All masonry quality shall equal or exceed the minimum standards established herein or shall be removed and replaced by new materials. Alternate methods of testing may be approved by the Department.

Nothing shall prevent pointing with cement mortar of all masonry wall joints before the tests are first made. If the exterior joints are pointed, then the inside face must also be pointed. Prior to any pointing, the wall surface must be sand or water blasted to remove loose and deteriorated mortar. All preparation and

cement mortar pointing shall be done under the continuous inspection of a registered deputy inspector with a subsequent written report to the Department. All testing shall be performed by an approved testing agency in accordance with the requirements specified in this Subsection.

**EXCEPTION:** Unreinforced masonry walls which carry no design loads other than its own weight may be considered as veneer if they are adequately anchored to new supporting elements.

## 2. NUMBER AND LOCATION OF TESTS: The quality of mortar

In all masonry walls shall be determined by performing in place shear tests or by testing eight-inch diameter cores. The minimum number of tests shall be two per wall or line of wall elements resisting a common force, or one per 1500 square foot of wall surface, with a minimum of eight tests in any case. The exact test or core location shall be determined at the building site by the licensed engineer or architect responsible for the seismic analysis of the subject building. The results of all tests or coring shall be recorded and reported.

**3. IN-PLACE SHEAR TESTS:** The bed joints of the outer wythe of the masonry shall be tested in shear by laterally displacing a single brick relative to the adjacent bricks in that wythe. The opposite head joint of the brick to be tested shall be removed and cleaned prior to testing. The minimum quality mortar in 80 percent of the shear tests shall not be less than the total of 30 psi plus the axial stress in the wall at the point of the test. The shear stress shall be based on the gross area of both bed joints and shall be that at which movement of the brick is first observed.

**4. CORE TESTS:** A minimum number of mortar test specimens equal to the number of required cores shall be prepared from the cores and tested

as specified herein. The mortar joint of the outer wythe of the masonry core shall be tested in shear by placing the circular core section in a compression testing machine with the mortar bed joint rotated 15 degrees from the axis of the applied load. The mortar joint tested in shear shall have an average ultimate stress based on the gross area of 20 psi. The average shall be made from the total number of cores made. If test specimens cannot be made from cores taken, the shear value shall be reported as zero. The results of all coring and shear testing shall be reported.

**(1) TESTING OF SHEAR BOLTS:** One-fourth of all new shear bolts and dowels embedded in unreinforced masonry walls shall be tested by a registered deputy inspector using a torque calibrated wrench to the following minimum torques:

1/2" diameter bolts or dowels = 40 foot-lbs.

5/8" diameter bolts or dowels = 50 foot-lbs.

3/4" diameter bolts or dowels = 60 foot-lbs.

No bolts exceeding 3/4 inch shall be used. All nuts shall be installed over malleable iron or plate washers when bearing on wood and heavy cut washers when bearing on steel.

## (2) DETERMINATION OF ALLOWABLE STRESSES FOR DESIGN METHODS BASED ON TEST RESULTS:

**1. DESIGN SHEAR VALUES:** Design seismic in-plane shear stresses greater than permitted in Table No. 68-D shall be substantiated by tests performed as specified in Section 91.6807 (c) 3 and 4.

Design stresses shall be related to test results obtained as noted in Table No. 68-G. Intermediate values between 3 and 5 psi may be interpolated.

TABLE NO. 63-G  
ALLOWABLE SHEAR STRESS FOR TESTED  
UNREINFORCED MASONRY WALLS

EIGHTY PERCENT OF TEST RESULTS IN PSI NOT LESS THAN	SEISMIC IN-PLANE SHEAR BASED ON GROSS AREA	
	AVERAGE TEST RESULTS OF CORES IN PSI	
30 plus axial stress	20	30 psi
40 plus axial stress	27	4 psi
50 plus axial stress or more	33 or more	5 psi

NOTES: 1. Allowable shear stress may be increased by addition of 10% of the axial stress due to the weight of the wall directly above.

2. DESIGN COMPRESSION and TENSION VALUES. Compression stresses for unreinforced masonry having a minimum design shear value of 3 psi shall not exceed 100 psi. Design tension values for unreinforced masonry shall not be permitted.

#### SECTION 91.6308. INFORMATION REQUIRED ON PLANS:

(a) GENERAL: In addition to the seismic analysis required elsewhere in this Division, the license engineer or architect responsible for the seismic analysis of the subject building shall determine and record the information required by this Section on the approved plans.

(b) CONSTRUCTION DETAILS: The following construction details shall be made part of the approved plans:

1. All unreinforced masonry walls shall be anchored to all floors and roofs with tension bolts through the wall or by existing rod anchors at a maximum anchor spacing of six feet. All existing rod anchors shall be secured to joists or rafters by bolting to develop the required forces. The Department may require testing to verify adequacy of embedded ends of existing rod anchors.

2. Diaphragm chord stresses of horizontal diaphragms shall be developed in existing materials or by addition of new materials.

3. Where wood roof or floor members other than rafters or joists are supported in masonry pockets, ledgers or columns shall be installed to support vertical loads of the roof or floor members.

4. Parapets and exterior wall appendages not capable of resisting the forces specified in this Division shall be removed, stabilized or braced to insure that the parapets and appendages remain in their original position.

5. All deteriorated mortar joints in unreinforced masonry walls shall be pointed with cement mortar. Prior to any pointing, the wall surface must be sand or water blasted to remove loose and deteriorated mortar. All preparation and pointing shall be done under the continuous inspection of a registered deputy masonry or concrete inspector with a subsequent written report to the Department.

6. Repair details of any cracked or damaged unreinforced masonry wall required to resist forces specified in this Division.

(c) EXISTING CONSTRUCTION: The following existing construction information shall be made part of the approved plans:

1. The approximate age of building.
2. The typical footing width, depth and maximum soil bearing for dead plus live loads.
3. The type and dimensions of existing walls and the size and spacing of floor and roof members.
4. The extent and type of existing wall anchorage to floors and roof.
5. The extent and type of parapet corrections which were performed in accordance with Section 91.0103 (b).
6. Accurately dimensioned floor plans and masonry wall elevations showing dimensioned openings, piers, wall thickness and heights.
7. The location of cracks or damaged portions of unreinforced masonry walls requiring repairs.
8. The type of interior wall surfaces and if reinstalling or anchoring of ceiling plaster is necessary.
9. The general condition of the mortar joints and if the joints need pointing.



## APPENDIX 4

Appendix Chapter 12 of the 1979 Uniform Building Code, "Existing Buildings"

## UNIFORM BUILDING CODE

## Chapter 12

## EXISTING BUILDINGS

## Existing Buildings

Sec. 1215. (a) Purpose. The purpose of this section is to provide a

reasonable degree of safety to persons living and sleeping in apartment houses and hotels through providing for alterations to such existing buildings as do not conform with the minimum safety requirements of this code.

(b) Scope. The provisions of this section shall apply exclusively

to existing nonconforming Group R, Division I Occupancies more than two stories in height.

(c) Effective Date. Eighteen months after the effective date of this section, every building falling within its scope shall be vacated until made to conform to the requirements of this section.

(d) Number of Exits. Every apartment and every other sleeping room shall have access to not less than two exits. A fire escape as specified herein may be used as one required exit.

Subject to the approval of the building official, a ladder device as specified herein may be used in lieu of a fire escape when the construction features or the location of the building on the property cause the installation of a fire escape to be impractical.

(e) Stair Construction. All stairs shall have a minimum run of 9 inches and a maximum rise of 8 inches and a minimum width exclusive of handrails of 30 inches. Every stairway shall have at least one handrail. A landing having

a minimum horizontal dimension of 30 inches shall be provided at each point of access to the stairway.

(f) Interior Stairways. Every interior stairway shall be enclosed with walls of not less than one-hour fire-resistive construction.

Where existing partitions form part of a stairwell enclosure, wood lath and plaster in good condition will be acceptable in lieu of one-hour fire-resistive construction. Doors to such enclosures shall be protected by a self-closing door equivalent to a solid wood door not less than 1 3/4 inches thick. Enclosures shall include landings between flights and any corridors, passageways or public rooms necessary for continuous exit to the exterior of the building.

The stairway need not be enclosed in a continuous shaft if cut off at each story by the fire-resistive construction required by this subsection for stairwell enclosures.

Enclosures shall not be required if an automatic sprinkler system is provided for all portions of the building except bedrooms, apartments and rooms accessory thereto.

(g) Exterior Stairways. Exterior stairs shall be noncombustible or of wood of not less than 2-inch nominal thickness with solid treads and risers.

(h) Fire Escapes, Exit Ladder Devices. 1. Fire escapes may be used as one means of egress, if the pitch does not exceed 60 degrees, the width is not less than 18 inches, the treads are not less than 4 inches wide, and they extend to the ground or are provided with counterbalanced stairs reaching to the ground. Access shall be by an opening having a minimum dimension of 29 inches when open. The sill shall be not more than 30 inches above the floor and landing.

2. A ladder device when used in lieu of a fire escape shall conform to U.B.C. Standard No. 33-3 and the following:

- or by wired glass set in metal frames. Doors shall be noncombustible or as regulated in Subsection (i).
- (l) Separation of Occupancies. Occupancy separations shall be provided as specified in Section 503. Lobbies and public dining rooms, not including cocktail lounges, shall not require a separation if the kitchen is so separated from the dining room.
- Every room containing a boiler or central heating plant shall be separated from the rest of the building by not less than a one-hour fire-resistive occupancy separation.
- EXCEPTION: A separation shall not be required for such rooms with equipment serving only one dwelling unit.
- (m) Alternates. No alternate method of obtaining the fire protection and safety required by this section may be used unless the Board of Appeals, including as a voting member for this purpose the chief of the fire department, finds that such alternate method provides protection and safety equivalent to that required herein.
- A. Serves an occupant load of nine people or less or a single dwelling unit or hotel room.
- B. The building does not exceed three stories in height.
- C. The access is adjacent to an opening as specified for emergency egress of rescue or from a balcony.
- D. The device does not pass in front of any building opening below the unit being served.
- E. The availability of activating the ladder device is accessible only to the opening or balcony served.
- F. The device as installed will not cause a person using it to be within 12 feet of exposed energized high-voltage conductors.
- (i) Doors and Openings. Exit doors shall meet the requirements of Sections 3303 (b), (c) (d) and 3304 (h). Doors shall not reduce the required width of stairway more than 6 inches when open. Transoms and openings other than doors from corridors to rooms shall be fixed closed and shall be covered with a minimum of 3/4-inch plywood or 1/2-inch gypsum wallboard of equivalent material.
- EXCEPTIONS: 1. Existing solid bonded wood core doors 1 3/8 inches thick of their equivalent may be continued in use.
2. Where the existing frame will not accommodate a door complying with Section 3304 (h), a 1 3/8-inch-thick solid-bonded wood core door may be used.
- (j) Exit Signs. Every exit doorway or change of direction of a corridor shall be marked with a well-lighted exit sign having letter at least 5 inches high.
- (k) Enclosure of Vertical Openings. Elevators, shafts, ducts and other vertical openings shall be enclosed as required for stairways in Subsection (f)

## APPENDIX 5

## Denver, Colorado

DENVER, COLORADOGeneral Code Requirements

Denver, Colorado operates under a local code based primarily on the 1973 Uniform Building Code which includes the 25-50% Rule, and the general change of use regulation. In December 1976, Denver enacted Chapter 31, "Rehabilitation of Older Buildings," into its code. Chapter 31 excludes from the 25-50% Rule and from the change of use regulation all buildings erected before 1950 of the following occupancies:

- o assembly less than 300;
- o educational and day-care centers;
- o business (including retail stores);
- o hotels;
- o apartments;
- o lodging houses; and
- o residences.

Reportedly, passage of Chapter 31 came about because of recognition on the part of community and building officials that it would not be economically feasible to rehabilitate older buildings under the 25-50% Rule, or when changing occupancy or increasing intensity of use. Hence, Section 3101 (b) states:

"It is hereby declared as a matter of public policy, that the rehabilitation, preservation, and restoration of older buildings located within the city is a public necessity, and is required in the general interests of the people."

The chapter further establishes a "Rehabilitation Advisory Panel" of twenty-five (25) persons from the building community. This panel was established to develop guidelines for use by the building official in approving requested deviations from the code for new construction for rehabilitation work. The guidelines identify the clauses of the code for which the building official shall consider deviations, but does not define specific requirements. (See below.)

Provision is made for subpanels consisting of four (4) to eight (8) members of the Rehabilitation Advisory Panel to advise the

building official on single applications. The subpanel recommendations are advisory. The building official makes the final decision.

The City of Denver has actually created two paths to code compliance with Chapter 31. It is up to the applicant to determine if the Chapter 31 route is used; otherwise, the 25-50% Rule and change of use regulation apply. The applicant chooses the Chapter 31 route by submitting a special application form noting the deviations from new code requirements requested.

#### Operation of the Code

In 1978 Chapter 31 was used about thirty times and is being used at about twice that rate in 1979. The system is reportedly working well. It is being used primarily for buildings which are quite old--late 1800's and early 1900's--and often with a change in use. Apparently, the building official does not always follow the subpanel recommendations.

Chapter 31 creates a dichotomy; that is, the building types covered in Chapter 31 do not have to meet the 25-50% Rule when being rehabilitated, while all other types do. Thus, there is a lack of uniformity in code treatment of the two classes of building. Nevertheless, the concept that public safety, at least in the selected building types, can be secured to a reasonable degree through the use of the "Preliminary Guidelines" is worthy of further consideration. It is clear from a reading of the Preliminary Guidelines that they represent an attempt to set a standard for existing buildings that is less stringent and more flexible than that for new buildings in the categories covered. This concept is illustrated in the following example.

Part (d) of the "Preliminary Guidelines" allows consideration and approval of stairs not meeting the width, rise and run dimensional limits specified for new construction. Code requirements for new buildings demand a minimum 36" exit stair in all circumstances. Using Part (d) 1, it is now possible to approve a stair somewhat narrower, but of sufficient width to still adequately provide for the safe exit of building occupants. Underpinning this approach is the concept that specific non-complying dimensions and attributes of an existing building can be accepted, if as a whole the building provides adequate public safety, while not meeting each new building requirement. It is unclear from this example, however, whether the Denver approach is one of equivalency or one of reduced performance.

The Denver approach is essentially a policy statement showing commitment to rehabilitation, followed by an administrative technique for approving deviations from the code for new construction on a case-by-case basis. It does provide for advice to the building official, but it is the building official who makes the final decision. To that extent, the system operates similarly to those rehabilitation projects falling in the 25% to 50% range. The guidelines do indicate to the user and building official those areas in which deviations will be considered.

If the deviations granted under Chapter 31 were recorded and catalogued, they might form the basis for a rehabilitation "code" but there is no indication that this is being done.

## CHAPTER 31

## REHABILITATION OF OLDER BUILDINGS

## SECTION 3101. GENERAL.

- (a) Scope. This Chapter shall govern the rehabilitation of buildings, structures, and utilities in Group B-3, C.F.H.1 and J occupancies which were built prior to January 1, 1950, and shall supersede all the requirements of this Building Code which are in conflict with the provisions of this Chapter.
- EXCEPTION: This Chapter shall not supersede the requirements of Chapter 1 relating to unsafe buildings, structures, or utilities.
- (b) Declaration. It is hereby declared, as a matter of public policy, that the rehabilitation, preservation, and restoration of older buildings located within the City is a public necessity and is required in the interest of the general welfare of the people. Special consideration shall be given to buildings that are Denver Landmarks or buildings on the National Register of Historic Places and National Historic Districts.
- EXCEPTION: Existing buildings, structures, or utilities may be granted an exception allowing the repair, rehabilitation, or change of occupancy of a building where the planned repairs, rehabilitation, or change of occupancy would not comply with the provisions of this Building Code. No exception shall be authorized hereunder unless the Director shall find the following conditions exist:
1. The building was constructed prior to January 1, 1950.
  2. The building, structure, or utility is structurally sound and the proposed repair, rehabilitation, or change of occupancy will substantially improve the use, safety, and welfare of the occupants.
  3. The Director, in making this determination, may request an Engineer's or Architect's report to determine the condition of the building, structure, or utility.
  4. The proposed repair or rehabilitation of a building, structure, or utility for residential use does not violate the provisions of the Housing Code, Article 611, Revised Municipal Code.
  5. The Fire Department concurs in an alternative method, utility, appliance, or system related to fire safety.

## SECTION 3102. REHABILITATION ADVISORY PANEL.

- (a) Creation. An Advisory Panel of 25 persons, with experience in the rehabilitation of buildings, structures, or utilities shall be appointed by the Mayor. Individual members of City Council may submit names to the Mayor for consideration for appointment to the Advisory Panel. Their term of office shall be as follows:
1. Five persons shall be appointed for a term of 1 year.
  2. Five persons shall be appointed for a term of 2 years.
  3. Five persons shall be appointed for a term of 3 years.
  4. Five persons shall be appointed for a term of 4 years.
  5. Five persons shall be appointed for a term of 5 years.
- After the initial appointments are made, each appointment shall be

made for a 5 year term. The Advisory Panel shall serve without compensation.

- (b) Composition of Advisory Panel. The Advisory Panel shall consist of the following:

1. Three members shall be Architects.
  2. Three members shall be Engineers.
  3. Two members shall be holders of a Class A or B Construction license.
  4. Two members shall be holders of a Plumbing Contractor's Class A License; and one member shall be the holder of a Plumbing Journeyman's Certificate.
  5. Two members shall be holders of a Heating and Ventilating Contractor's Class A License; and one member shall be the holder of a Heating and Ventilating Journeyman's Certificate.
  6. Two members shall be holders of a Steam and Hot Water Contractor's Class A License; and one member shall be the holder of a Steam and Hot Water Journeyman's Certificate.
  7. Two members shall be holders of an Electrical Contractor's Class A License; and one member shall be the holder of an Electrical Journeyman's Certificate.
  8. The remaining five members of the Advisory Panel shall be appointed from the real estate and financial field.
- (c) Vacancy. Should a vacancy occur on the Advisory Panel during a member's term, the Mayor may fill the vacancy for the unexpired term. Any member of the Advisory Panel, after serving a complete term, may be reappointed to another full term.
- (d) Guidelines. The Advisory Panel shall adopt guidelines for use by the Director in determining compliance with this Chapter.
- (e) The Advisory Panel may adopt rules, procedures, and organization.

SECTION 3103. COMPLIANCE. The Director, in determining compliance with the conditions set forth in this Chapter, may or shall, upon request of the applicant, establish a Sub-Panel consisting of 4 to 8 members of the Advisory Panel; a member of the Department of Health and Hospitals; and the Fire Department.

SECTION 3104. CONSIDERATION. The requirements of this Building Code shall be met in the rehabilitation of all buildings, structures, and utilities; but consideration for an exception may be given to existing buildings, structures, and utilities deemed safe and useable by the Department.

PRELIMINARY GUIDELINES FOR USE BY THE DIRECTOR

The preliminary guidelines are established in order to direct committees attention to areas of special concern. The panel directs committees appointed hereunder to consider all areas and to report any required revisions in these guidelines. It is the intent of the panel to review the preliminary guidelines and revise them within 60 days.

Guidelines for use by the Director and the Advisory Panel in determining compliance with Chapter 31 of the Denver Building Code are herein itemized. In considering the following items it must be kept in mind that the building, structure or utility must be structurally sound and the proposed repair, rehabilitation, or change of occupancy must substantially improve the use, safety and welfare of the occupants.

(a) Fire Protection Systems (Chapter 38)

1. Standpipes, Pumps and Connections

- A. The use of existing fire protection appliances, when approved by the Department and Fire Department to determine that they are serviceable.
- B. The distance to standpipes not meeting the precise locations of Chapter 38.

2. Fire Detection and Fire Alarm Systems

- A. Partial fire detection systems and manual fire alarm and central stations
- B. Smoke detection systems in lieu of other requirements

3. Openings.

- A. Window openings (size, number and location)
- B. Vertical openings (stairways, escalator opening, elevator shafts).

4. Pressure Requirements for pressure standards

(b) Heating, Cooling and Venting Systems (Chapter 37, 31, 32, and 38)

1. Access to cleanouts in crawl spaces Chapter 37
2. Depth of cleanout wells in chimneys of less than 12 inches Chapter 37
3. Clearances for chimneys and vents Chapter 57
4. Utilization of existing duct systems which do not provide conforming weights and gauge Chapter 52
5. Existing systems that do not meet the clearance requirements Chapter 52.

6. Outside air intakes Chapter 52

7. Steam, hot water and process piping do not meet the requirements of Chapter 58 and when no safety hazard is apparent

(c) Electrical (Chapter 53)

1. Required wiring method when it serves only outlets and equipment for which it was originally designed
2. Grounding and bonding when it meets the minimum standards for personnel protection, fire safety and is compatible with occupancy and the environment it serves.
3. Knob and tube wiring and ungrounded non-metallic cable wiring
4. Panels in boiler rooms or heating rooms

- (d) Stairs, Exits and Occupant Loads. (Chapter 33)
1. Stairs and exits not meeting the specific minimum requirements of Chapter 33 (width, rise and run).
  2. Stairs and exits not meeting the specific number and precise location requirements of Chapter 33 (distance between, occupancy load, etc).
  3. Reduced floor loading. Chapter 23
  4. Secondary exits not in complete compliance with Chapter 33.
  7. Rise more than, and run less than that required in Chapter 33.
  8. Distances between landings (vertical) more than required in Chapter 33.
  9. Ramps with width less than those required in Chapter 33.
- EXCEPTION: Contemplation of wheel chair use.
10. Open stairs.
- (e) Plumbing. (Chapter 50)
1. Use of existing operating leadwork, trap and venting systems or replacement and duplication of old systems with new materials.
  2. Variance in use of, support of, cleanout requirements, sizing, venting and methods of connection of serviceable drain piping regardless of material or installation method. Alternate methods of testing where impractical to pressure test.
3. Variance in types, sizes and materials of water piping, method of connection, location, frost line depth and requirements for individual control valves.
  4. Variance in practices, materials, or installation of plumbing where alteration would require unnecessary, difficult, or impractical changes in plumbing, piping or connection to conform to plumbing code.

## APPENDIX 6

Washington, D.C.

WASHINGTON, D. C.General Code Provisions

The District of Columbia uses a locally developed code loosely based on the Basic Building Code format. The code incorporates neither the 25-50% Rule nor the general change in use regulation. It does, however, contain provisions (basically prescriptive) specifically addressing existing buildings and also specific provisions applied when a change in use occurs.

In general, the code provides for several levels of code compliance as follows:

i. Code in effect when building was erected

ii. Retroactive provisions:

- o most exclude one and two family,
- o some exclude certain buildings under three stories

iii. Provisions concerning alteration or conversion

iv. Provisions for new construction.

The code also incorporates a hazard ranking by occupancy type and intensity of use. Conversion is defined as a change to a higher hazard use. Alteration is defined as work which affects egress arrangements or fire resistivity.

In general, the provisions concerning alteration or conversion are less stringent than for new buildings in both fire ratings and egress. The retroactive provisions are still less stringent than either category. Both of these classes of provisions cover primarily egress and fire resistivity.

The code provisions were developed over a long period of time and were based essentially on allowing certain deviations from the requirements for new construction for existing, altered or converted buildings.

Following this discussion are the primary sections of the District of Columbia code covering alteration and conversion of existing buildings. These sections include:

- o Section 100 12 - Buildings Altered or Converted (general application)
- o Section 100 13 - Existing Buildings (general application)



- o Section 504 - Buildings Altered or Converted (light, ventilation and space requirements)
- o Section 312 - Buildings Altered or Converted (covers height and area, change in occupancy, projections, fire-resistance requirements)
- o Sections 663-639- Buildings Altered or Converted (egress requirements)
- o Sections 640-650- Existing Buildings (egress requirements)
- o Section 629 - Buildings Altered or Converted (fire and flame resistance requirements)
- o Section 1008 - Existing Installations (chimneys, vents and fireplaces)

#### Operation of the Code

In the absence of a 25-50% Rule, any building may be repaired and rehabilitated complying only with the code in effect when it was erected, plus those retroactive provisions for existing buildings which apply to it. Compliance with the more stringent provisions for altered or converted buildings becomes necessary only when the use of the building is changed to one of greater hazard.

For example, the District of Columbia contains many three-story and basement row dwellings. When a one- or two-family row dwelling is rehabilitated, it need be in compliance only with the code in effect when it was built, e.g., replace with like materials and systems. Note that one- and two-family dwellings are generally excluded from retroactive provisions. If, on the other hand, it is converted to three or four apartments, it must meet the more stringent requirements for conversion, such as enclosure of exits, fire alarms, detectors, etc.

Because of format and references, it is necessary to be familiar with the total code in order to result in the most economical method to meet retroactive provisions or to alter or convert a building. In each instance, several options are generally available. Following is a much simplified example of optional egress requirements for an existing, non-fire resistive construction (Type 3) building with eight dwelling units and two open stairways:

#### i Retroactive Provisions:

- o Option 1 - Enclose both stairways.
- o Option 2 - Fully enclose one stairway, partially enclose the other.

- o Option 3 - Partially enclose one stairway and provide fire escapes for each apartment

#### ii Alteration or Conversion Provisions:

- o Option 1 - Enclose both stairways (may still have to provide fire escapes, depending upon building layout).
- o Option 2 - Enclose one stairway, partially enclose second and provide fire escapes

#### iii New Construction:

- o No option - Must have two Class A enclosed stairways

This concept of specific written provisions for multi-level code enforcement, e.g., existing, retroactive, altered or converted, and new construction, accomplishes several goals:

- o It provides for less stringent requirements than for new construction.
- o It minimizes discretionary authority, and hence, minimizes the legal liability or the preception of such liability, of the inspector or building official
- o It eliminates value or cost of rehabilitation as a factor--the provisions are based on the need to secure reasonable minimum levels of life safety.

## APPENDIX 2

Primary Sections of Washington, D. C. Code  
Concerning Existing Buildings, Alterations,  
and Conversions

## Sec 100 12 Buildings Altered or Converted

## 100.121 Buildings Erected After February 1, 1951

Buildings for which a permit application was filed on or after February 1, 1951, for the purpose of altering or converting, shall comply with all applicable requirements of this Code with respect to such alterations or conversions

## 100 122 Buildings Erected Before February 1, 1951

Buildings for which a permit application was filed before February 1, 1951, for the purpose of altering or converting, shall comply with the requirements of Sections 634 0 through 640 0 of Article 6

## Sec 100 13 Existing Buildings.

Buildings and structures for which application for permit to construct was filed prior to the effective date of this Code, shall be subject to 100 12 on Maintenance, and Sections 641 0 through 650 0 of Article 6

## SECTION 312 0 - BUILDINGS ALTERED OR CONVERTED

## Sections

## 312.1 Increase in Height

## 312 2 Increase in Area

## 312.3 Change in Occupancy

## 312.4 Existing Projections

## 312.5 Fire-Resistance Requirements

## Sec. 312.1 Increase in Height

(1) No building shall be increased in height unless, with the increased height, it meets the fire-resistance requirements of this Code

(2) Minor variations from such required fire-resistance for the existing part of the building may be allowed by the Director.

## Sec. 312 2 Increase in Area

(1) When a building is increased in area, the new part shall conform with the requirements of this Code for new construction

(2) In case the required fire-resistance ratings of constructions in the addition differ from those for the existing building by 3/4 hour or more, or the addition is of a different type of construction of a lower fire rating, a fire separation per § 303 5 shall be provided

## Sec 312.3 Change in Occupancy

(1) No change in occupancy to one requiring greater fire-resistance for the building or lesser height or area, shall be made unless the building conforms, or is altered to conform with the requirements of this Code for the new occupancy

(2) Changes in use which present similar fire or occupancy hazards, may be made

## Sec 312 4 Existing Projections

No structural alterations shall be made to existing projections which change their projection on public space, unless such projections be made to conform with the requirements of Section 311 0 of this Article

## Sec. 312 5 Fire-Resistance Requirements

(1) Requirements for Types 1, 2 and 3 Construction The requirements shall be the same as for new construction except as provided herein

1 Existing Buildings When buildings, erected prior to July 1, 1925, are altered or converted, in lieu of the required Type 1 main floor, such main floor shall be protected on the underside with incombustible material having not less than a one-hour fire-resistance rating, including columns and beams. All floors below the main floor of such buildings shall be subdivided into fire areas not exceeding 1,500 square feet. The above fire protection and subdivision of floors below the main floor is in lieu of a Type 1 main floor. Existing non-fire-resistive exit and public corridors and stair landings shall be covered on top with a minimum of 3/8 inch thickness of incombustible material, or other material of such thickness

and type as may be approved by the Director. The soffits of such stairs, both sides of stud partitions, and exit and public corridor ceilings, shall be protected with incombustible material having a fire resistance rating of not less than one hour. The spaces between floor joists running at an angle with the corridor partitions, directly above and below, shall be fire stopped with incombustible materials. The space between stair stringers shall be fire stopped at the top and bottom of the stairs. All stairs extending below the main floor shall terminate in a 2-hour incombustible enclosure with a Class B self-closing door entering thereto. Doors leading from such corridors shall be Class C self-closing Transoms shall be removed and the openings protected.

(2) Requirements for Type 4 Construction. In general, existing Type 4 Buildings shall not be altered or converted to any use other than L-2, except that existing Type 4 Buildings, not over 3 stories or forty feet in height, may be altered or converted to Group E, C or F-4B occupancies under the following conditions:

a. The existing frame exterior walls shall be provided with a nominal 4 inch thick masonry veneer or an exterior surface of incombustible material providing an overall 3/4 hour fire-resistance rating.

b. Existing masonry party walls may remain unchanged. Existing frame party walls shall be provided with a minimum 3/4 hour fire-resistance rating, or the wood lath and plaster removed on one side, stud spaces filled solidly with mineral wool and minimum of 3/4 inch gypsum plaster on metal lath or 1/2 inch gypsum plaster on gypsum lath 1/2 inch of approved fire resistant rated gypsum sheet rock applied to that side.

c. The fire areas within the basements shall be limited to 1500 square feet between fire walls and in all stories above the basement fire areas shall be limited to 2500 square feet between fire walls.

d. The total capacity of the Building shall not exceed 150 persons with the second floor limited to 75 persons. The Group E, C or F-4B occupancy shall be limited to the basement, first and second floors.

e. All other applicable provisions of this Code, including fire resistivity (other than exterior walls), egress, light and ventilation for altered and converted buildings, shall be in full force and affect.

1 Outside of Fire Limits. Open porches, not projecting into public space, may be enclosed but such enclosure shall constitute an addition and shall comply with all zoning and building code requirements for additions. (For construction of porches on public spaces see § 311.11.)

## 2 Inside of Fire Limits

a. Wood frame buildings may be moved within their original lot lines, or may be moved to any area in which such construction is permitted, but shall not be moved to any other site within fire limits, except by approval of the Commissioner.

b. A Type 4 building, deteriorated or damaged beyond one-half of its present reconstruction value, may not be repaired, altered, or rebuilt. The amount or extent of such deterioration or damage, shall be determined by the Commissioner.

c. Enlargement. A Type 4 building depreciated to the extent noted under subsection 2 above, may be enlarged by wood frame construction as follows, provided the requirements for light and ventilation of all rooms affected are complied with, and such construction complies with all applicable requirements of this Code: 1. A one or two-story extension may be added to the rear of an original structure subject to the requirement that the sum of all extensions to the rear of such original structure shall not cover more than 120 square feet of ground area. 2. A second story not exceeding 120 square feet of floor area may be erected on an existing one-story extension, on the rear of an original structure, but in such case no further extension shall be permitted.

d. Increase in Wall Height. Exterior wood frame walls shall not be increased in height except as follows: 1. Where the top story or an attic was constructed and used for human habitation, and the ceiling height is less than required, such walls may be increased sufficiently to provide the ceiling height required by this Code. 2. A flat roof covered with metal or other incombustible material may be substituted for a gable or pitched roof, provided the cubic contents of the top story is not increased.

## SECTION 504 00 - BUILDINGS ALTERED OR CONVERTED

## Sections

- 504 1 Skylights
- 504 2 Ceiling Heights
- 504 3 Sunporches

## Sec. 504 1 Skylights

In the alteration or conversion of existing habitable rooms having insufficient window area, additional light and ventilation may be provided by means of skylights up to 50 percent of the total area required

## Sec 504 2 Ceiling Heights

504 21 Habitable Rooms. In the alteration or conversion of buildings existing prior to July 10, 1942, habitable rooms shall have a clear height of not less than seven feet in at least the minimum floor area required under Section 501 2

504 22 Occupiable Rooms In the alteration or conversion of buildings erected prior to January 8, 1952, occupiable rooms shall have a clear ceiling height of not less than seven feet

504 23 Minimum Headroom The minimum headroom shall conform with the requirements of Section 501 5

## Sec 504 3 Sunporches.

In the construction of sunporches on existing single-family dwellings a variation of ten percent will be permitted of the required glazed areas under Section 502 5, when full compliance with the requirements would involve exceptional structural difficulties

## SECTION 633 0 - BUILDINGS ALTERED OR CONVERTED

## Sections

- 633.1 Scope
- 633.2 Applicability
- 633.3 Grouping of Occupancies
- 633 4 Conditions for Conversion
- 633.5 Additions
- 633.6 Allowable Variance
- 633 7 Doors Projecting Beyond Building Line

## Sec 633.2 Scope

The requirements of this Section apply only to the scope of the work contained in the permit

## Sec 633 2 Applicability

(1) The provisions under Sections 633 0 through 639 0 of this Article shall apply to buildings which were existing or under construction, or for which an application for a permit to construct, alter or convert was made prior to March 8, 1946

(2) Where there are no specific provisions in Sections 633 0 through 639 0 applying to the alteration or conversion of any such building, or part thereof (see §§ 633 5 and 633 6), then such building or part thereof shall be made to comply with the pertinent provisions of Sections 601 0 through 632 8 which also apply to alterations, or conversion, in buildings erected after Feb 1, 1951

(3) In the enforcement of Sections 633 1 and 633 2(1) and (2), the application thereof to the areas affected shall include all areas in which work is to take place, and if said work imposes a greater burden upon the structure or means of egress, then, in such event, the Director shall include, as a part of the scope of work covered by the application, other areas directly affected as a result of the work performed

(4) Nothing in this Article shall be construed to waive the requirements of the Act of Congress of June 1, 1910 as amended. (36 Stat 452.)

## Sec 633 3 Grouping of Occupancies

In general, the following classification by groups of occupancies, beginning with the most hazardous, shall be used to determine the order in which occupancies shall be considered hazardous to life, but shall not be construed to waive requirements of this Code which may be imposed due to the use, height, size, or capacity for occupancy of any building

- (1) High Hazard Group A buildings
- (2) Institutional Group H-1 buildings
- (3) Institutional Group H-2 buildings.
- (4) Theatres, Group F-1 Assembly buildings.
- (5) Assembly Group F-2 buildings with capacity of 300 or more
- (6) Assembly Group F-3 buildings with capacity of 300 or more.
- (7) Assembly Group F-4A buildings with capacity of 300 or more.
- (8) Assembly Group F-4B buildings with capacity of 300 or more.

## Sec. 633 6 Allowable Variance

A variance of ten percent in any required dimension or number in relation to egress, will be permitted in the alteration, or conversion, of existing buildings, as defined in this Section unless full compliance is required under Section 633 2. This variance will not be permitted in the case of ceiling height, headroom, slope of ramps, rise and tread of stairs, nor emergency lighting or appliances.

## Sec 633 7 Doors Projecting Beyond Building Line

Existing doors swinging out 18 inches beyond building line may remain

## SECTION 634 0 - STAIRWAYS FOR BUILDINGS ALTERED OR CONVERTED

## Sections

- 634 1 Interior Stairways
- 634 2 Exemption from Enclosure
- 634 3 Closets in and Under Stairways
- 634 4 Smokeproof Towers
- 634 5 Exterior Stairs
- 634 6 Limitations on Use
- 634 7 General Requirements for Exterior Stairs
- 634 8 Construction of Exterior Screened Stairways
- 634 9 Fire Escapes

## Sec. 634.1 Interior Stairways.

- (1) Stairways and landings may be accepted if their narrowest point be used to determine the number of units of width above that point.
- (2) In the alteration or conversion of buildings erected prior to March 8, 1946, a fireman's gooseneck ladder leading from a fire escape or an interior ladder and scuttle leading to the roof, may be accepted or provided, in lieu of extending the interior stairs to the roof.
- (3) Stair installations which do not fully conform to the requirements in Section 603.5 on treads, risers, and landings, will be accepted if approved by the Director.

- (9) Residential Group L-1 buildings
- (10) Assembly Groups F-2, F-3, or F-4A buildings with capacity under 300
- (11) Assembly Group F-4B buildings with capacity under 300
- (12) Mercantile Group C buildings
- (13) Industrial Group D buildings
- (14) Storage Group B buildings, including public parking and storage garages.
- (15) Business Group E buildings.
- (16) Residential Group L-2 buildings
- (17) Miscellaneous uses, the relative hazard of which to be determined by the Director

## Sec. 633 4 Conditions for Conversion

- (1) Any building may be converted, from one type of occupancy to another within any group of occupancies of the same or lesser hazard, without incurring additional requirements within the limits of this Section, provided that fire-resistivity or egress facilities are not reduced, that no increase in height or size, that the capacity for occupancy is not so increased as to require additional egress facilities.
- (2) Buildings may be converted to occupancies of greater hazard, but the requirements for fire-resistivity, egress facilities and other applicable requirements for the new occupancy must be fulfilled. See Tables 5 and 6 of Article 2 and Section 312.0 of Article 3.
- (3) Existing Type 3B Buildings, not over four stories in height, may have those stories below the top two stories converted to Group C and/or Group F-2 Occupancies; provided, that a minimum of 1-1/2 hours fire separation is provided between the various occupancies.

## Sec. 633.5 Additions.

- (1) Additions in Area. Additions increasing the floor area of existing buildings shall be considered as new construction and shall comply with all applicable provisions of Sections 601.0 through 632.6 of this Article.
- (2) Addition of Stories. No alterations or additions shall be made which increase the number of stories of an existing building unless the stairs and exit corridors directly affected by the addition are made to comply with all applicable provisions of Sections 601.0 through 632.6 of this Article. In connection herewith, the removal of earth adjacent to such building, which changes the status of the ground floor, shall be considered an alteration.

(3) See Section 634.9(7)3 for fire escapes on buildings over five stories in height

#### Sec. 634 7 General Requirements for Exterior Stairs

The following requirements shall apply to all types of exterior stairs

- (1) Plans and Inspection Two sets of plans containing details of the construction of each stairway or fire escape shall be submitted to and approved by the Director before their erection is started. Plates and nuts forming interior supports for brackets and rails shall not be concealed until inspected and approved by the Director
- (2) Painting and Maintenance. Required exterior stairs and fire escapes shall be painted before and immediately after erection, and shall be painted thereafter as often as necessary to maintain them in proper condition. They shall be kept clear of all encumbrances and obstructions, and shall be promptly cleared of any accumulation of snow or ice

(3) Proximity of Ducts or Electric Wires No ventilating, air conditioning or exhaust duct or opening shall open upon nor within 10 feet directly below a required exterior stairs or fire escape, nor shall electric wires, unless enclosed in rigid conduits or as otherwise approved by the D C Electrical Code, be directly above nor within 5 feet of such stairs or fire escapes

#### (4) Arrangement and Accessibility

1 Exterior stairs shall be arranged to lead directly to a street or public alley, or to an approved court or open space leading to a street or public alley, and shall extend to the roof of the building they serve, unless otherwise approved by the Director.

2. The location of exterior stairs shall be such that the occupants of the building served by them shall not be required to pass through a stair enclosure to reach them

3 Where connecting rooms are always rented as a suite, proper access from any room of the suite will be considered sufficient. The Director may require an affidavit to the effect that such rooms are always rented en suite.

4. Drop ladders when in the raised position, and the brackets of platforms, shall be at least 14 feet above alleys, and at least 12 feet above sidewalks and parkings.

#### Sec 634.2 Exemption from Enclosure.

The following are exempt from the requirement that each stairway shall be completely within an enclosure:

(1) Two-story L-2 buildings converted to L-1 uses having rooming units only for not more than 25 persons above the main floor and having a direct, independent, second means of egress from each rooming unit.

(2) Three-story L-2 buildings converted to L-1 uses having rooming units for not more than 15 persons above the main floor and having a direct, independent, second means of egress from each rooming unit

#### Sec. 634.3 Closets in and Under Stairways

Except in two-story buildings, closets installed in non-fire-resistive stair enclosures shall be fire protected on the inside in accordance with the requirements of Section 606 5(2). Openings between the stairway and the closet shall be protected in fire-resistive stairways, the doors of each such closets shall be protected.

#### Sec 634 4 Smokeproof Towers

(1) Class B stairs, where permitted by occupancy egress requirements, may be used in smokeproof towers.

(2) Where Fire-Resistive construction is not required, except in places of public assembly, the stairs, landings, and platforms within the tower enclosure may be of wood, if tower is protected in accordance with Section 607 3.

#### Sec. 634.5 Exterior Stairs

Required exterior stairs shall consist of exterior screened stairways or fire escapes, and shall be constructed of incombustible materials

#### Sec. 634 6 Limitations on Use

(1) Fire escapes shall not be permitted as a required exit on buildings erected after March 8, 1946

(2) Fire escapes shall not be permitted as required means of egress on any building, regardless of date of erection, that is altered or converted for use as a school, Group F-4A (see exception in Section 629 2(3) for schools in Business Group E buildings) or in any other Group F Assembly buildings, nor on Group H-2 Institutional buildings.

## Sec 634 9 Fire Escapes

Fire escapes shall be made of steel or wrought iron. Welding shall conform with the requirements of Article 8, Section 842 0 of this Code.

## (1) Material Requirements

1. Steel shall be of grade conforming with the requirements of Article 8, Section 842 0 of this Code.

2. Wrought iron shall conform with the requirements of specifications for Wrought Iron Rolled Bars, ASTM A207-68.

(2) Design Load Platforms, stairs, and their supports shall be designed for a live load of not less than 100 lbs per square foot of horizontal projection.

(3) Width The minimum clear width of stairs and ladders shall be 20 inches and the minimum clear width of platforms, landings, and passageways, shall be at least the width of the stairs they serve.

## (4) Rise

1. The pitch of stairs, and of drop ladders in the "down" position, shall not exceed 60 degrees.

2. The vertical distance between platforms shall not exceed 14 feet.

3. Risers of stairs shall not exceed 12 inches and treads shall not be less than 5 inches in width.

(5) Drop Ladders. Drop ladders shall be used in all locations where fire escapes are suspended above public space, and may be used in other locations.

## (6) Vertical Ladders.

1. Vertical ladders, either of the rigid or of the collapsible type, may not be used in locations where the pitched or horizontal type can be used.

2. Vertical ladders of the collapsible type, in locations where permitted, may be used, if of a type and design approved by the Director.

3. Vertical ladders of the rigid type, where permitted, shall have guide rails arranged to keep the ladders close to the edge of the platforms, and to prevent swaying.

5. If the height between the ground level and the lowest platform exceeds 20 feet, an intermediate platform at least 3 feet in length and of width equal to the width of the stairs it serves, shall be provided. Such intermediate platform shall be at least 14 feet high, if above an alley; at least 12 feet high, if above a sidewalk or parking, and at least 7 feet high, if above private property.

## Sec 634 8 Construction of Exterior Screened Stairways

(1) Anchorage. All supporting bars which are in tension and which are fastened directly to a building shall pass through the wall and be securely fastened to the framework of the building or by other means giving adequate anchorage for the stress carried by the bars.

(2) Stairs. The width, rise, and tread of stairs shall conform to the requirements for Class B interior stairs.

(3) Platforms, Passageways, and Landings. The minimum clear unobstructed width of platforms, passageways, or landings connecting flights of stairs shall not be less than the width of such stairs. Landings at the head and foot of stairs shall have a minimum dimension not less than the required width of the stairs, and shall extend at least 4 inches beyond the jambs of any exit opening thereon. The vertical distance between platforms, passageways, or landings shall not exceed 12 feet.

(4) Headroom. The minimum headroom at all points on platforms, passageways and stairs shall be 6 feet 8 inches, measured vertically.

(5) Enclosure of solid, slotted, or grille construction, not less than 5 feet high, shall be provided for platforms, passageways, landings, and stairs. For stairs, the height of the enclosure shall be measured vertically from the nosings of the stairs. Roofs, with eaves projecting at least 6 inches beyond the enclosures, shall be provided, and shall be extended to cover the stairs leading to the ground level, whether such stairs are fixed or are of the swinging type.

(6) Openings for Access. Access to stairways shall be through doors or casement windows, not less than 30 inches wide and 6 feet 6 inches high, the sills of which are not more than 8 inches above the level of the platform or passageway. Such doors or windows shall be fire-protected in accordance with Article 9, Section 915.0, shall swing in the direction of exit travel and be so arranged that they cannot obstruct exit travel on the stairway.

# SECTION 635 0 - EMERGENCY LIGHTNING, SIGNS, AND PROTECTIVE APPLIANCES FOR BUILDINGS ALTERED OR CONVERTED

## Sections

- 635 1 Emergency Lightning and Signs
- 635 2 Special Protective Appliances

### Sec 635.1 Emergency Lighting and Signs

(1) The requirements for emergency lighting and signs in connection with exterior screened stairways and fire escapes shall be the same as set forth for other types of exits in Section 613 0 of this Article

(2) The requirements for lighting other types of exits shall be the same as in Section 613 0 of this Article

### Sec 635 2 Special Protective Appliances

The requirements for hand fire extinguishers, fire alarm equipment, standpipes, and automatic sprinklers, or other automatic protection, shall be the same as are specified for new construction in this Code

# SECTION 636 0 - RESIDENTIAL L-1 AND BUSINESS GROUP E OCCUPANCIES FOR BUILDINGS ALTERED OR CONVERTED

## Sections

- 636 1 Stairways

### Sec. 636 1 Stairways

Required stairs for buildings altered or converted for L-1 Residential use of E Business use shall consist of not less than one Class A or B interior stairway or smokeproof tower. If additional means of egress are required, they may be exterior screened stairways. Fire escapes may be permitted if the building was erected prior to March 8, 1946.

# SECTION 637.0 - STORAGE B, MERCANTILE C, AND INDUSTRIAL D OCCUPANCIES FOR BUILDINGS ALTERED OR CONVERTED

## Sections

- 637 1 Stairways
- 637.2 Storage or Parking Garages

## (7) Railings

1 Each platform, landing, and passageway, shall be provided with railings consisting of at least two rails, the top of which shall be not less than 32 inches high

2 Railings shall be supported by standards of 1-in pipe, or equivalent, and shall be of sufficient strength to sustain a horizontal pressure against the top rail of 25 pounds per linear foot

3 On buildings over 5 stories in height, the railings on those portions of fire escapes above the 5th floor level, shall be enclosed to the height of the top rail with metal slats or grills, or mesh construction

(8) Details of Construction The details of construction of fire escapes, not herein specified, shall be as approved by the Director

## (9) Openings for Access

1. Where a room intervenes between a public corridor or hallway and a fire escape, either the door of the room shall be removed, or an unobstructed passageway leading to the fire escape shall be provided not less than 30 inches wide.

2 Windows may be used as access to fire escapes provided they are not less than 30 inches wide in the clear, 3 feet high, and with sill not more than 2-1/2 feet above floor level, unless otherwise approved by the Director

3. Where a window providing access to a fire escape serves more than two rooms or more than 10 persons, and its sill is more than 18 inches above floor level, one or more steps of equal height shall be provided. Such steps shall be the full width of the window opening and shall have not less than 9-inch treads.

4 For protection of wall openings at fire escapes, see Article 9, Section 929.0.



SECTION 639 0 - ASSEMBLY GROUP F BUILDINGS FOR  
BUILDINGS ALTERED OR CONVERTED

## Sections

639 1 Group F-1, F-2, F-3, and F-4B Assembly Buildings  
639 2 Group F-4A Assembly Buildings

Sec 639 1 Group F-1, F-2, F-3, and F-4B Assembly Buildings

For buildings altered or converted to Group F-1, F-2, F-3, or F-4B Assembly use, the requirements for means of egress and related facilities shall be the same as for new construction under applicable provisions of Sections 601.0 to 632.8

Sec. 639 2 Group F-4A Assembly Buildings

(1) Buildings not over Three Stories. Buildings not more than three stories in height, nor more than 5,000 square feet per floor in area, erected prior to March 8, 1946, which are altered or converted to F-4A Assembly or similar use, shall have not less than two means of egress, one of which shall be an interior enclosed Class A or Class B stairway located next to an exterior wall. This stairway shall have a window to the outside at each story, except the story in which a door discharges from the stairs directly to the outside. Exterior stairways, if constituting an additional required means of egress, shall comply with no lesser requirements than for exterior screened stairways in Sections 634.7 and 634.8.

(2) Buildings over Three Stories. Buildings more than three stories in height, or having more than 5,000 square feet of area per floor, which are altered or converted to Group F-4A Assembly use, shall be required to conform with all applicable provisions of Sections 601.0 through 632.8 of this Article, except as provided under paragraph (3) below.

(3) Schools in E Business Buildings. Buildings or portions thereof, erected prior to September 16, 1947, which meet all the requirements for E Business use, may be occupied for school uses without further requirements when approved by the Director, provided the following conditions are met:

1. The students be ambulatory persons 18 years of age or over.
2. The population shall not exceed that permitted for E Business purposes.
3. The use of the building for school purposes will not create any hazard exceeding that incident to normal business use.

## Sec 637.1 Stairways

(1) In buildings not more than five stories in height, that are altered or converted for B Storage, C Mercantile, or D Industrial use, there shall be not less than one Class A or Class B interior stairway, or smokeproof tower. If additional means of egress are required, they may be exterior screened stairways. Fire escapes may be permitted if the building was erected prior to March 8, 1946

(2) In such buildings over five stories in height, there shall be at least one Class B interior stairway, or smokeproof tower. If fire escapes are already installed they may be used as additional means of egress subject to the requirements of Section 634.9(7)3..

(3) In such buildings over five stories in height, where fire escapes are not already installed, there shall be at least one Class B interior stairway or smokeproof tower. If additional means of egress are required, they may be Class B interior stairways, smokeproof towers, or exterior screened stairways

Sec. 637.2 Storage or Parking Garages.

The requirements for buildings altered or converted to parking or storage garages for five or more vehicles, shall be the same as under Section 637.1 above, except that ramps without enclosures may be built in such buildings

SECTION 638.0 - HIGH HAZARD A OCCUPANCIES FOR BUILDINGS  
ALTERED OR CONVERTED

## Sections

638.1 General Requirements.

Sec. 638.1 General Requirements.

For buildings altered or converted to Group A High Hazard uses, the requirements for means of egress and related facilities shall be the same as for new construction under applicable provisions of Sections 601.0 through 632.8 of this Article.

4. The floors are designed and constructed to support the maximum live loads, including students and such shop, laboratory, or other school equipment as specified in the application for certificate of occupancy

5 Exit widths shall be not less than those computed on the basis of 60 persons per unit of width per floor occupied for school purposes

#### SECTION 640 0 - EXISTING BUILDINGS

##### Sections

640 1 Statement of Intent and Administrative Procedures

640 2 Applicability

640 3 Board of Appeals and Review

Sec 640 1 Statement of Intent and Administrative Procedures

(1) Statement of Intent It is the intent of Sections 640 0 through 649 0 of this Article to provide a reasonable amount of protection to occupants of existing buildings so that their lives will be safeguarded against the dangers of fire, smoke and panic. It is not the intent of these Sections to impose excessive requirements not commensurate with the benefits derived.

(2) Date of Violation As provided in Means of Egress Act of December 24, 1942, (Public Law 838, 77th Congress) the text of which is set forth in the Building Code Manual, the Commissioner of the District of Columbia hereby authorizes the Director of the Department of Economic Development, or his representative, to issue notices directing the owner, as defined in said Act, to comply with those items not meeting the requirements of Sections 640 0 through 649 0 of this Article as set forth in said notice, not later than ninety days from the date of service of the notice in the manner specified in the Act, and in addition thereto the Director may when in his opinion, conditions justify, authorize extension or extensions to said notice. Upon the expiration of the time set forth in said notice or any extension or extensions thereto and the failure of the owner to comply with the said notice, it shall be deemed at that date that any further use and/or occupancy of the building is not in compliance with these regulations and thereafter following the expiration of a thirty-day notice in writing from the Director of the Department of Economic Development, served in the manner prescribed in said Act, it shall be a violation of these regulations for the owner to use the building or for any person to occupy the building.

(3) Penalties and Restrictions. As provided in the Means of Egress Act of December 24, 1942, any owner who uses or permits the occupancy of his building in violation of these regulations, as defined in this Section, shall be subject to the following penalties or restrictions:

1. Upon conviction of a violation of these regulations, the owner shall be punished by fine of not less than \$10 00 nor more than \$100 00 per day for each and every day such violation exists; and

2 Without application to court, the Director of the Department of Economic Development is empowered to cause such construction and installations of those items set forth in the notice provided in this Section, and the Commissioner is authorized to assess the costs thereof as a tax against the building on which they are erected and the ground on which the building stands, said assessment to bear interest at the rate and be collected in the manner provided in Section 5 of the Act entitled "An Act Relating to the Levying and Collecting of Taxes and Assessments, and for other Purposes," and approved June 25, 1938; and

3 Upon petition of the District of Columbia filed by the Commissioner in the United States District Court for the District of Columbia, the said Court may issue an injunction to restrain the use or occupation of the building, and the same shall apply to the owner, lessee or occupant thereof

#### Sec. 640.2 Applicability

(1) These requirements shall apply to the following:

1 All existing Institutional H buildings regardless of height or date of erection

2 All Assembly F buildings of any height erected prior to March 8, 1946, or subsequently erected under permits applied for prior to that date; and

3. All other buildings erected prior to March 8, 1946, or subsequently erected under permits applied for prior to that date, which are three or more stories or over thirty feet in height.

4. The requirements of 1 2. and 3 above, do not apply to Residential L-2 buildings

(2) The specific provisions in Sections 640 0 through 649 0 of this Article are applicable to any existing building coming within the limits defined under (1) above.

# SECTION 641.0 - GENERAL EXIT AND PROTECTION REQUIREMENTS FOR EXISTING BUILDINGS

## Sections

- 641.1 Room Exits
- 641.2 Permissible Roof Exits
- 641.3 Boiler Room Exits
- 641.4 General Stair Requirements
- 641.5 Stairs to Roof
- 641.6 Interior Stairways and All Vertical Shafts
- 641.7 Exterior Stairs
- 641.8 Stairway Enclosures
- 641.9 Existing Wood Fire Escapes where Fire Escapes are Required
- 641.10 Enclosure of Shafts
- 641.11 Doorways and Doors
- 641.12 Exit Corridors
- 641.13 Required Protection

## Sec. 641.1. Room Exits.

The number and location of room exits shall be as specified hereinafter except that where exceptional hardship could result, the Director may modify the requirements with the concurrence of the Fire Chief.

## Sec. 641.2 Permissible Roof Exits.

At least two exits shall be provided if the occupant capacity on the roof is more than 100 persons. Capacity shall be prominently posted.

## Sec. 641.3 Boiler Room Exits.

If more than one exit is required as per § 601.5, then a permanent steel ladder or circular metal stairway with rungs or treads not less than 18 inches long may serve as one of the required exits from boiler rooms.

## Sec. 641.4 General Stair Requirements.

Existing stairs, both interior and exterior stairs and fire escapes, shall be accepted with no change provided that the specific provisions of Sections 640.0 through 649.0 are satisfied.

## Sec. 641.5 Stairs to Roof.

In lieu of the required extension of an interior stairway to the roof, a permanent steel ladder not less than 22 inches wide and scuttle not less than 2 feet by 3 feet, or extension to the roof of an exterior screened stairway or fire escape

(3) Where the application of the requirements of Sections 640.0 through 649.0 would result in exceptional or undue hardship by reason of excessive structural or mechanical difficulties or impracticability of bringing the premises affected into compliance, a variance may be granted by the Director only where, and to the extent, necessary to ameliorate such exceptional or undue hardship; and only when compensating factors are present which, in his opinion, give adequate protection to the public safety, or which will be provided and installed and which will give adequate protection to the public safety, and such variance can be granted without impairing the intent and purposes of Section 640.0 through 649.0

(4) The Director, in his discretion, may refer requests for variances, without final decision, to the Board of Appeals and Review for the latter's action

(5) The owner of any premises subject to the provisions of Sections 640.0 through 649.0 who is adversely affected by a determination made by the Director under the authority of Sections 640.0 through 649.0 may file an appeal in writing with the Board of Appeals and Review. Such appeal shall state the error alleged to be contained in any decision, determination or refusal adversely affecting such owner, and shall be filed within the period specified in the notice of violation for compliance therewith. (See Section 640.3.)

## Sec. 640.3. Board of Appeals and Review

In applying the provisions of Sections 640.0 through 649.0 and related structural requirements, the Board of Appeals and Review may grant a variance from the application of Sections 640.0 through 649.0, if such Board shall find that the full performance of the requirements of Sections 640.0 through 649.0 and related structural requirements would result in undue hardship by reason of excessive structural or mechanical difficulty or impracticability of bringing the premises affected into full compliance with the requirements of Sections 640.0 through 649.0; provided that a variance will be granted only where, and to the extent, necessary to ameliorate such exceptional and undue hardship and only when the compensating factors are present which give adequate protection to the public safety; or which will be provided and installed and which give adequate protection to the public safety; and such variance can be granted without impairing the intent and purposes of Sections 640.0 through 649.0. Any decision of the Board of Appeals and Review made pursuant to this Section shall be final.

ladder protected as required in § 929.2 of Article 9 shall be provided. See also Table 101 of this Article

#### Sec. 641.6 Interior Stairways and All Vertical Shafts

(1) Stairway installations which do not conform to the requirements of Section 603.5 on treads, risers, landings, and tread surfacing, and to Section 603.6 on vertical rise, may be approved by the Director if considered safe by him for the particular locations and use

(2) Closets may be permitted to remain under stairways if fire-protected as required in Section 634.3

(3) Stairs in smoke-proof towers may be Class B if having the width required for the location, and stairs, landings, and platforms, within the tower may be of wood for the conditions allowed in Section 634.4

(4) In these requirements, a smoke-proof tower shall be considered the equivalent of and may be substituted for an enclosed interior stairway if the requirements of maximum length of travel are fulfilled.

(5) The limitations on dead ends of corridors beyond the entrance to stairways or other exits shall not apply.

(6) Moving stairs shall be accepted as providing part of the required exit width to the extent permitted in Section 605.0 of this Article.

(7) All interior stairways, as defined in this Code, shall have at least one handrail or balustrade.

#### Sec. 641.71 Exterior Stairs.

(1) Exterior screened stairs and fire escapes where permitted under occupancy egress requirements, shall conform with the requirements of Sections 634.7, 634.8 and 634.9 except that if not conforming to these requirements, the Director may approve them if considered safe by him for the particular locations and use, and further provided that previously established access to existing fire escapes through existing rooms by means of a door which has a glass panel that can be broken to gain entrance will be continued to be allowed.

(2) Protection of wall openings at exterior stairways and fire escapes shall conform to the requirements of Section 929.2 of Article 9.

#### Sec. 641.8 Stairway Enclosures

The requirement of Section 606.1, that the enclosure shall be so arranged that the line of travel shall be completely within the enclosure, may be modified where allowed by the occupancy egress requirements for existing buildings, Sections 643.0 through 648.0 of this Article, to permit enclosures that serve primarily to prevent communication of fire, smoke, and heated gases from story to story

(1) For this purpose, the stairway may be enclosed in alternate floors

(2) Partitions may be placed across the ends of corridors adjacent to stairways.

(3) Stairways shall be enclosed in the attic space

(4) Enclosure construction shall conform to the requirements of Article 9, Section 909.0 except that the fire-resistance rating need not exceed 3/4 hour incombustible in buildings of Type 1 or Type 2 construction nor 3/4 hour combustible in buildings of Type 3 or 4 construction.

(5) Doors into stairway enclosures from utility rooms, store rooms, commercial kitchens, shop rooms, and other similar or more hazardous uses shall be of not less than unlabeled hollow metal or kalamein construction and shall be set in steel bucks. Doors into stairway enclosures from other locations shall be equivalent to 1-3/4 inch thick solid wood core construction or shall be covered with 26 gage metal on the side leading into the stairway enclosure. Existing wood bucks shall be covered with 26 gage metal on at least the side leading into the stairway enclosure or shall be replaced by steel bucks. All doors leading into stairway enclosures shall be equipped with approved closers.

(6) Enclosures for moving stairs shall conform to the requirements of Section 606.0 of this Article.

(7) Each stairway required to be either fully or partly enclosed shall be provided with ventilation as required for new buildings. See Article 5.

#### Sec. 641.9 Existing Wood Fire Escapes where Fire Escapes are Required.

All wood fire escapes shall be removed and in lieu thereof there shall be erected a standard fire escape which conforms to the requirements of this Code, or other means of egress shall be provided conforming with the requirements for existing buildings.

#### Sec 641.10 Enclosure of Shafts

(1) Elevator shafts and pipe and vent shafts over 10 square feet in area shall be enclosed with constructions as required in Section 909.0 of Article 9 except that the fire-resistance rating need not exceed one hour in buildings of Type 1 Fire-Resistive construction nor 3/4 hour in buildings of Types 2, 3, or 4 construction. Openings in enclosures shall be protected as required in Section 914.0 of Article 9, except that doors of elevator shafts may be 1-1/2 hours Class B, or 1-1/2 hours BOCA labeled, and doors of other shafts shall conform with the requirements for K or better.

(2) Shafts of 10 square feet or less area shall be enclosed to be smoke-tight in a manner satisfactory to the Director. Doors, frames and trim, if of wood, shall be covered on the shaft side with not less than 26 gage metal.

#### Sec. 641.11 Doorways and Doors.

The requirements for doorways, doors, and door hardware shall be as required for new construction in Sections 611.1 through 611.7, 617.5(1), 626.8 and Sections 910.0 through 914.0 of Article 9 except as herein provided:

##### (1) Swinging Doors.

1. No landing need be provided where a door opens on a flight of steps, Section 611.2(8), but the first tread of the stair shall be on a level not more than one inch below the threshold.

2. Existing exit doors required to swing outward may swing beyond the building line but not beyond the outer line of adjoining show windows, bay windows or other authorized projections, nor more than 18 inches where there are no projections.

3. Unless otherwise provided, no change need be made in existing doorways and doors from rooms to public corridors, if conforming from the standpoint of location, number, units of width, headroom, openability, fire resistivity and swing, with the requirements for new construction, except that where such doors do not comply with the requirements for fire resistivity they shall be as fire-resistant as 1-3/4 inch solid wood core door, or shall be covered with at least 26 gage metal on the room side as shall the door jambs, or both sides of the doors, jambs and trim shall receive a coating of an approved paint which will provide a fire-retardant flame spread rating. Such doors from the storage and utility rooms shall be covered on the room

side with at least 26 gage metal. In L-1 buildings, undercut doors or louvers with approved fire dampers may be permitted in transom space above doors, in walls, or in doors from dwelling units to public corridors where existing air conditioning systems require louvers for return air through corridor. Existing slot and/or louvered doors in L-1 Residential Buildings where fresh air is supplied to the dwelling units from the public corridor may remain. All existing vertical ducts must have approved fire dampers. In addition, smoke alarms shall be installed in each and every duct returning air from a floor to the circulating fan such that the alarms will turn the circulating fan off. Fire dampers shall be in accordance with Section 1109.31 of Article 11.

(2) Revolving Doors. Existing revolving doors may be permitted to remain in use and serve as a means of egress, provided that they are not less than 5 feet 6 inches in diameter and that the width of opening is not less than 3 feet 0 inches.

(3) Approval and Labels. Existing doors in locations requiring labeled openings may be approved by the Director, provided that when they were originally installed, these types of doors were accepted and approved as meeting the requirements for labeled openings.

#### Sec. 641.12 Exit Corridors.

In buildings of Type 1 and 2 construction the walls, floor system, and ceilings of exit corridors shall be of incombustible construction with a rating of not less than 1 hour for Type 1 nor 3/4 hour for Type 2 construction. In buildings of Type 3 or 4 construction only, the walls, floor system, and ceilings of exit corridors may be of combustible construction, but shall have a rating of not less than 3/4 hour. For purposes of this section only, existing wood lath and plaster may be removed on the corridor side of partitions of Type 3 or 4 buildings, the stud spaces fully filled with mineral wool batt insulation, and the plaster replaced by an approved 3/4 hour material. Doors from utility rooms, store rooms, kitchens, shop rooms and other similar or more hazardous uses shall be of not less than unlabelled hollow metal or kalamein construction and shall be set in steel bucks with approved closers. Doors from other rooms shall be equivalent to 1-3/4 inch thick solid wood core construction or shall be covered with 26 gage metal on the room side and shall be equipped with approved closers. Existing wood bucks shall be covered with 26 gage metal on the room side or shall be replaced by steel bucks. Where in the judgment of the Director it is determined that existing low hazard uses adjacent to

lobbies used as exit corridors are of such nature as to meet the intent of Sections 617.5, 617.9 and 620.6, when applied to Business E and L-1 Residential buildings the relaxation in the requirements permitted by these sections may be applied.

#### Sec. 641.13 Required Protection.

(1) Main Floor. Required protection of the main floor shall be 3/4-hour.

(2) Transoms. All transoms over door openings between rooms and public corridors, exit corridors or lobbies in all buildings of Group A, F, H and L-1 occupancies shall be made unopenable and glazed with 1/4" thick wire glass or covered with 26 gage metal or 3/8" thick gypsum board.

#### SECTION 642.0 - EXIT LIGHTS, SIGNS AND SPECIAL PROTECTIVE EQUIPMENT FOR EXISTING BUILDINGS

##### Sections

- 642.1 Exit Lights and Signs
- 642.2 Automatic Sprinkler Equipment
- 642.3 Fire Extinguishers
- 642.4 Fire Alarm Equipment
- 642.5 Standpipe Systems

#### Sec. 642.1 Exit Lights and Signs.

Existing buildings shall conform with the requirements of Section 613.0 of this Article on exit lights and signs, as modified by occupancy egress requirements for new buildings, except that in L-1 Residential occupancy buildings where accommodations are provided above the main floor for not more than 15 persons, emergency lighting appliances shall not be required, provided that the stairway is enclosed or that there is an open stairway and an independent second exit from every room.

#### Sec. 642.2 Automatic Sprinkler Equipment.

(1) Automatic sprinklers shall be provided only as required by occupancy egress requirements for existing buildings, and required installations shall conform with the requirements of Sections 1200.0 and 1201.0 of Article 12.

(2) Existing automatic sprinkler installations shall be considered acceptable if conforming substantially with generally accepted requirements when installed.

#### Sec. 642.3 Fire Extinguishers.

Fire extinguishers shall be provided and conform with the requirements for new construction under Article 12, Section 1202.0, except as exempted under the same conditions as for emergency lighting in Section 642.1, and as further provided in Section 642.5(4).

#### Sec. 642.4 Fire Alarm Equipment.

Fire alarm equipment shall be provided as required by Section 1203.1 of Article 12 for new construction, except as exempted under the same conditions as for emergency lighting in Section 642.1.

#### Sec. 642.5 Standpipe Systems.

(1) No new standpipe systems or additions to such systems will be required in existing buildings.

(2) In buildings six stories or more in height, any existing standpipe system having pumper connection for use by the Fire Department shall remain, in use, provided, that if the standpipes are found to be nonconforming in strength, hose thread, and similar essential details as determined by the Fire Chief, they shall be made conforming.

(3) In buildings less than six stories in height, any existing nonconforming standpipe system having pumper connection for use by the Fire Department, which upon tests made in the presence of the Fire Chief, is found to be of inadequate strength to serve the building shall be made to conform or shall be removed or capped.

(4) Standpipes for small hose without pumper connection which are used in lieu of fire extinguishers shall be continued in use if pressure and flow test made at the top outlets indicate adequacy for the location. If found inadequate, fire extinguishers shall be provided, or means shall be provided to increase the water pressure or supply, or the height of the standpipes shall be cut to the level where they are indicated as adequate, such tests and determinations to meet the requirements of and be made in the presence of the Fire Chief.

SECTION 644 0 - INSTITUTIONAL GROUP H OCCUPANCIES FOR  
EXISTING BUILDINGS

## Sections

- 644 1 General Requirements  
644 2 Exit Requirements

## Sec 644.1 General Requirements

(1) Fire Protective Features All buildings of Group H Occupancy shall be required to be fully sprinklered and shall have stairways of a width and design approved by the Director, except those of Type 1 or 2A construction, or those of Type 2B, 3A, 3B, or 3C construction wherein persons are housed on the first floor only, if the entrance to such first floor is at a grade or within 6 feet of grade, or those buildings used as day nurseries in which less than 15 fully ambulatory children are accommodated on the first floor or first and second floors only. All buildings of Type 4 construction used for Group H occupancy, regardless of the number of stories, shall be fully sprinklered. Where other compensating fire protective features or egress features, or fire protective features and egress features, are provided in combination with the consideration of the number of occupants and the height of the building, a variance consistent with the requirements set forth in Section 640 2(3), (4) and (5) may be permitted, and if such variance is granted such building shall not be required to be fully sprinklered. Where buildings are required to be fully sprinklered, the sprinkler system shall be indirectly connected to D. C. Fire Alarm Headquarters through a private central office, or the fire alarm system shall be directly connected to the D. C. Fire Alarm Headquarters, or there shall be provided at least one non-coin operated public telephone in such a location as to be readily accessible at all times. The Director and the Fire Chief shall approve the location of such telephone, rules limiting the use thereof, and such signs or placards as are found to be necessary to properly explain the sending of emergency messages thereby.

(2) Buildings which are fully sprinklered will be excused from:

1. Rearranging the required means of egress so that they open directly to street or public alley or to an open air or fire resistive passage leading thereto.
2. Providing the second approved means of egress for each room or suite of rooms on all floors
3. Providing access to the roof.
4. Fire protecting corridor partitions and ceilings.

SECTION 643 0 - RESIDENTIAL L-1 AND BUSINESS E OCCUPANCIES  
FOR EXISTING BUILDINGS

## Sections

- 643.1 Width of Stairways  
643 2 Single Stairway  
643 3 Type and Enclosure of Stairways  
643 4 Egress from Stairs

## Sec. 643 1 Width of Stairways.

Stairways may be Class A, B or C See Section 604 1

## Sec 643.2 Single Stairway

Three story and higher buildings shall have not less than two interior stairways, or one interior stairway and a smoke-proof tower or fire escape, from each egress area (Section 601.1), except that one stairway will be permitted under the conditions set forth in Table 100 for L-1 Buildings and Table 101 for Business E Buildings

## Sec. 643 3 Type and Enclosure of Stairways

In requirements under this Section, no distinction from the standpoint of enclosure requirements is made between required interior stairways and those not required, except as provided for Business E buildings in Section 606.3 and Section 643.2 and for Residential L-1 buildings in Section 643.2. The requirements for stairs in Business E and Residential L-1 buildings requiring more than one means of egress shall be in accordance with Table 102 and Table 103 respectively.

## Sec. 643 4 Egress from Stairs.

Not less than one required exit stairway shall discharge directly to the outside or to an exit corridor leading thereto. The remaining stairways may discharge through a lobby or foyer on the main floor, provided adjacent occupancies are cut off from such lobby or foyer as provided in Sections 617.5 and 620.6

2 Enclosure of Stairways The requirements for stairways, whether partly or fully enclosed, shall be in accordance with Section 641.8. All stairways shall be fully enclosed, except as follows:

- a. Stairways not serving as required means of egress may be partly enclosed
- b. In buildings of Type 1 or 2A construction, of any height, stairways serving as required means of egress may be partly enclosed when used in conjunction with two or more fully enclosed stairways, horizontal exits, or ramps, the travel to which may pass by but not through the partial enclosure
- c. In buildings of Type 1 or 2A construction, not over three stories high, stairways serving as required means of egress may be partly enclosed when used in conjunction with at least one fully enclosed stairway, exterior screened stairs, horizontal exit, or ramp, the travel to which may pass by but not through the partial enclosure
- d. In buildings required to be fully sprinklered, partly enclosed stairways will be permitted.
- e. In buildings wherein the use is limited to the first floor, or where the building is used as a day nursery where less than 15 fully ambulatory children are accommodated on the first floor or first and second floors, a partial enclosure shall be provided in the first or second stories
3. Exterior Screened Stairway. In buildings not over four stories high, an exterior screened stairway may serve the purpose of one enclosed stairway, ramp, or horizontal exit required for new construction.

#### SECTION 645.0 - INDUSTRIAL GROUP D AND MERCANTILE GROUP C OCCUPANCIES FOR EXISTING BUILDINGS

##### Sections

- 645 1 Industrial Group D Occupancies  
645 2 Mercantile Group C Occupancies

##### Sec. 645.1 Industrial Group D Occupancies.

###### (1) Type and Enclosure of Stairways

1. An existing building three or four stories in height if of Type 3 construction, or not over five stories in height if of Type 1 or Type 2A construction, may be served by one or more stairways, partly enclosed per Section 641.8 and one or more exterior screened stairways of fire escapes, the number of interior stairways depending on the required exit width, and this number

5 Providing self-closing fire doors between rooms and exit corridors or passages

6 Providing fire doors between rooms and public corridors

7 Terminating basement stairs in proper enclosure

8. Fire-protecting entire basement ceiling

9. Removing all non-conforming partitions from the building

##### Sec. 644 2 Exit Requirements

(1) Institutional H-1 Buildings The egress requirements for existing H-1 Institutional buildings shall comply, as far as practicable, with the requirements for new construction as in Section 619.1 of this Article.

i. Stairways. Stairways shall be enclosed, except that in those buildings where the surveillance of the occupants is a requisite or where there are to be found other special operating conditions affecting the restraint or protection of occupants, or where there are present other compensating factors as set forth in Section 640.2(3), a variance to allow an open stairway will be considered.

2. Egress Plans and Certification The Director may require a plan and description of the exit facilities provided, and a certificate of their adequacy, signed by the responsible official in charge of the occupancy.

##### (2) Institutional H-2 Buildings.

1. Number and Type of Exits Except as exempted under Section 644 1(2), or where the total number of occupants does not exceed 15 (in which case the Director may, with the concurrence of the Fire Chief, permit but one exit), there shall be not less than two exits of the following types:

- a. Horizontal exits.
- b. Doors leading directly to the outside of the buildings
- c. Enclosed ramps
- d. Enclosed or partly enclosed interior stairways.
- e. For special conditions, as described hereinafter, exterior screened stairways.



## Sec. 646.1 Partly Enclosed Stairways

(1) A storage building three or four stories high if of Type 3 construction, or not over five stories high if of Type 1 or Type 2A construction, may be served by one or more stairways partly enclosed per Section 641.8 in conjunction with one or more exterior screened stairways or fire escapes

(2) If the building is equipped throughout with an automatic sprinkler system, the requirements under (1) above, either on the height limitation of the building or on the requirements for exterior stairways, shall be waived

## Sec. 646.2 One Fully Enclosed Stairway

(1) A storage building of any height may be served by one fully enclosed stairway in conjunction with one or more partly enclosed stairways, or one or more exterior screened stairways or fire escapes

(2) If the building is equipped throughout with an automatic sprinkler system, the requirements for exterior stairways under (1) above shall be waived

## Sec. 646.3 Parking and Storage Garages

A parking or storage garage, the use of which has not been changed, and the lines of travel of the original stairways which have not been altered, will not be required to provide additional means of egress, if it has not less than one fully enclosed stairway.

SECTION 647.0 - HIGH HAZARD GROUP A OCCUPANCIES  
FOR EXISTING BUILDINGS

## Sections

647.1 Width and Location of Exits

647.2 Enclosure of Stairways

647.3 Exterior Stairways

## Sec. 647.1 Width and Location of Exits.

No change shall be required in width of exits when one unit of exit width or more for each 3,000 sq. ft. of the largest floor area served is provided.

The distance to exits may be 100 feet in buildings protected with an automatic sprinkler system and 60 feet in buildings not thus protected.

as well as that of exterior stairways, depending also in the allowed maximum travel to an exit (See Sections 621.3 and 622.3)

2 If the building is equipped throughout with an automatic sprinkler system, the height limitation under 1 above shall not apply

3 Buildings of any height in which two or more enclosed stairways or smokeproof towers are required for new construction may be served by one fully enclosed stairway, in conjunction with one or more stairways partly enclosed per Section 641.8, or one or more exterior screened stairways or fire escapes

## Sec 645.2 Mercantile Group C Occupancies.

## (1) Type and Enclosure of Stairways

1 Buildings three stories in height of Type 3 construction, or three or more stories in height of Type 1 or Type 2A construction, shall have not less than one fully enclosed stairway in conjunction with one or more exterior screened stairways or fire escapes. All stairways shall be fully or partly enclosed except as exempted from Group C occupancy buildings in Section 606.3.

2. If a building is other than Type 4 construction and is equipped throughout with a fully automatic sprinkler system, the height limitations under 1. above, shall not apply, and in addition the stairways may be partly enclosed.

(2) Egress from Stairways. Not less than one requires exit stairway shall discharge directly to the outside or to an exit corridor leading thereto. The remaining stairways may discharge through a lobby or foyer on the main floor, provided such lobby or foyer is separated from the remainder of the floor. See Section 622.6(2).

SECTION 646.0 - STORAGE GROUP B OCCUPANCIES  
FOR EXISTING BUILDINGS

## Sections

646.1 Partly Enclosed Stairways

646.2 One Fully Enclosed Stairway

646.3 Parking and Storage Garages

SECTION 649 0 - MULTIPLE OCCUPANCIES  
FOR EXISTING BUILDINGSSections  
649 1 Multiple Occupancy

Multiple occupancy separations in existing buildings shall be accepted if being constructed of, or having a fire resistance rating equivalent to a double wall of metal lath and plaster. Any layout of exit facilities, including exit widths, may be accepted by the Director with the concurrence of the Fire Chief, subject to such modifications as in their judgment are essential for safety.

SECTION 650.0 - BUILDINGS AFFECTED BY THE TEMPORARY  
REGULATIONSSections  
650 1 Applicability

## Sec 650.1 Applicability

(1) Those buildings for which certificates of occupancy were issued under the authority of Commissioners' Order dated May 28, 1943, E. D. 210593-54 and Commissioners' Order dated November 24, 1943, E. D. 236470-27 known as the "Temporary Regulations" for the war emergency and wherein the certificate of occupancy is desired to be continued, shall meet the following:

1. All buildings, three or more stories in height, shall meet all applicable provisions of Sections 640 0 through 649.0 of this Article.

2. All buildings, two stories in height, having rooming or dwelling units for more than 25 persons above the main floor shall, in addition to a direct, independent second means of egress from each such unit, have a fully or partially enclosed stairway accessible to each rooming or dwelling unit and shall meet the other applicable provisions of Sections 640 0 through 649.0 of this Article pertaining to L-1 occupancies.

3. All buildings, two stories in height, having rooming or dwelling units for not more than 25 persons above the main floor and having a direct, independent second means of egress from each rooming or dwelling unit will not be required to have a fully enclosed stairway, but all other applicable provisions of Sections 640.0 through 649.0 of this Article pertaining to L-1 occupancies shall apply.

## Sec 647 2 Enclosure of Stairways.

Stairways not serving as a required means of egress may be partly enclosed per Section 641.8

## Sec. 647 3 Exterior Stairways

Exterior stairways may be exterior screened stairways or fire escapes

SECTION 648 0 - ASSEMBLY GROUP F OCCUPANCIES  
FOR EXISTING BUILDINGS

## Sections

## 648 1 Exit Layout

## 648 2 Emergency Stairways

## 648 3 Grandstands, Stadiums, Reviewing Stands, and Other

## Outdoor Assembly Places

## 648 4 Outside Stairways

## Sec 648 1 Exit Layout

Any layout of exit facilities, including exit widths, seating arrangements, aisles, ramps, and steps, may be accepted by the Director, with the concurrence of the Fire Chief, subject to such modification as in their judgment are essential for safety.

## Sec 648 2 Emergency Stairways

Emergency stairways may be either fully enclosed interior stairways, smokeproof towers, or exterior screened stairways. Required interior stairway enclosures shall be in accordance with Section 641.8 of this Article.

Sec. 648 3 Grandstands, Stadiums, Reviewing Stands, and Other  
Outdoor Assembly Places

Egress stairways and ramps need not be enclosed irrespective of the height of the structure, if the construction is of Type 1 or Type 2 with solid floor or deck.

## Sec. 648.4 Outside Stairways.

Outside stairways need not conform with the requirements of Section 612 0 of this Article, except for railings under Section 612.1(5)

## SECTION 929.0 - BUILDINGS ALTERED OR CONVERTED

## Sections

- 929.1 Fire-Resistive Doors, Windows, and Shutters
- 929.2 Openings on Exterior Stairs or Fire Escapes

## Sec. 929.1 Fire-Resistive Doors, Windows, and Shutters

When buildings are altered or converted the requirements for fire-resistive doors, windows, and shutters shall be the same as for new construction. The Director may allow minor variations where the required degree of fire safety is substantially obtained.

## Sec. 929.2 Openings on Exterior Stairs or Fire Escapes

Where exterior screened stairs or fire-escapes are approved in connection with the alteration or conversion of buildings, the windows and doors opening onto them, or within ten feet under them shall be protected in accordance with the following:

929.21 Double-hung or single-hung windows shall have the upper half of the sash glazed with wired glass, 1/4 inch thick, and shall be properly counterbalanced or shall be permanently fixed

929.22 Casement windows shall be glazed with wired glass 1/4 inch thick

929.23 Doors shall be covered on the inside with metal not thinner than 26 gage, and if glazed, shall be glazed with 1/4 inch wired glass; jambs and trim may be unprotected on the ground floor.

929.24 Show windows on the ground floor either projecting or in the walls of the building, need not be protected.

## SECTION 1008.0 - EXISTING INSTALLATIONS

## Sections

- 1008.1 General Requirements
- 1008.2 Correction of Deficiencies

## Sec. 1008.1 General Requirements

When new equipment is to be connected to an existing masonry chimney which does not have an approved lining in good condition, an approved lining shall be installed. This may consist of Type B gas vent, U.L. approved chimney, or other lining of the type required for the equipment to be connected or may be made of approved stainless steel welded throughout.

## Sec. 1008.2 Correction of Deficiencies

Correction of unsafe conditions due to defective chimney, flue, fireplace or incinerator installations shall be required

## APPENDIX 7

San Francisco, California

SAN FRANCISCO, CALIFORNIACode Requirements

San Francisco has a local code organized in the format of the Uniform Building Code. The 25-50% Rule and the general change of use regulation are not included in the code. The general application of the code to an existing building is contained in Sections 104 A through 108 and Table 5.1 for change in occupancy. Section 104 A specifically references the housing code. Other major provisions are:

Section 104.B - Structural Alteration Work

Provides that new work and any part which becomes an integral part of or affected by the work shall meet the code for vertical loads. Generally defined on a floor-by-floor basis, and requires improvement of floor above and below, if needed to prevent adverse affect

The entire building must meet lateral force requirements (104 F) when more than 30% cumulative since the building was built) of the above grade area has been involved in substantial structural alteration work

Section 104.C - Architectural Alteration Work

Provides that all new or directly affected work shall meet code requirements. When 75% of interior walls or partitions on a floor as measured by lineal footage are removed or added to a floor, then all interior walls or partitions on that floor shall comply with the code. If substantially all of the interior walls, ceilings, etc. of a building are involved in extensive change, then the building as a whole must comply with lateral force requirements

Section 104.D - Additions

Provides for specific code compliance requirements for lateral force, fire protection, egress, height and area

Section 104.E - Change of Occupancy

Table 5.1 of this section shows those changes of use which require less than or full compliance with the code. The table is a matrix of occupancies. Depending upon the use to which the building is being converted, and based on relative hazard, it may be required to fully meet new construction standards, or it may be required to meet one of two levels of essential occupant and fire safety rules specified.

San Francisco also has a housing code which contains certain retroactive provisions

Operation of the Codes

Essentially, San Francisco inspects existing buildings to the housing code (for residential occupancies) and to the codes under which they were erected. A field inspection manual for residential occupancies is used which contains specific tolerances and guidelines for inspectors on enforcement requirements. When new work is required, the new work must meet the code as specified in 104.B and 104.C. Seismic requirements are triggered by the 30% and 75% Rule in 104.B and 104.C. These percentages, however, are based upon the percentage of the building affected, rather than investment or cost. Allowable changes in occupancy and degree of code compliance required is governed by the matrix of Table 5.1

## ARTICLE 1

TITLE  
AND  
SCOPE

Sec. 101 Title This Chapter, known as the "Building Code," is a portion of the San Francisco Municipal Code, and will be referred to in this Chapter as "this Code."

Sec. 102 Purpose The purpose of this Code is to provide minimum standards to safeguard life and limb, health, property, and public welfare by regulating and controlling the design, construction, alteration, repairing, maintenance, use, moving and removal of buildings or other structures or parts thereof erected or to be erected in San Francisco; and the safe use of such buildings, structures and land and by regulating quarrying, grading, excavating or filling of land in San Francisco. Provisions of this Code shall supplement all laws of the State and the City and County of San Francisco relating to buildings and property.

Sec. 103 Scope. The provisions of this Code shall apply to the construction, alteration, moving, demolition, repair, and use of any building or structure within San Francisco.

Additions, alterations, repairs, and changes of use or occupancy in all buildings and structures shall comply with the provisions for new buildings and structures except as otherwise provided in Sections 104.A through 104.H, and 502 of this Code.

Detailed requirements for installations administered under the San Francisco Electrical Code, the San Francisco Plumbing Code, and the San Francisco Fire Code are not included in this Code.

Where in any specific case, different sections of this Code specify different materials, methods of construction, or other requirements, the most restrictive shall govern. In the case of any conflict between a general provision and a special provision of this Code, the special provision shall govern.

#### Sec. 104.A. Application to Existing Buildings, General.

Buildings or structures to which additions, alterations, or repairs are made, or in which the occupancy of all or a portion of the building is to change from that for which a permit has been issued, shall comply with all requirements for new buildings or structures except as specifically provided in Sections 104.A through 104.H and as required in the Housing Code.

→ The term "portion of the building" shall mean the floor or floors that are affected by the change in use.

Notarized certifications describing the extent of all previous substantial alteration work and/or previous changes of occupancy shall be submitted by the owner and the designer of a proposed alteration or change of occupancy when required by the Superintendent.

For construction in Fire Zones, see Article 16

Sec. 104.B Alteration Work, Structural In any alteration, repair, installation, or change or reconstruction of any building, the new work and any part of the building which becomes an integral part of, or is directly affected by such work, shall meet the structural requirements of this Code. → for vertical loads

For the purpose of this section, a floor of a building shall include all the structure supporting a level of the building between the underside of said structure and the underside of the structure supporting the level of the building next above.

The extent of an existing building that is considered as being directly affected by the new work, with regard to structural considerations, shall be determined using the following criteria:

1 When structural alteration work is to be done on a floor or floors of a building or structure, the work on the floor or floors involved shall comply with the structural requirements of this Code. The structure above and below the floor or floors involved shall be improved, if and as required, so that they are not adversely affected by the structural work proposed.

2 When the floor loading is increased on the floor or floors of a building or structure, the floor or floors involved shall meet the structural requirements of this code and all structure below the floor or floors with increased loading shall not be adversely affected.

3 When more than 30%, cumulative since the building was built, of the above grade area of the building or structure are involved in substantial structural alteration work, the entire building or structure shall comply with the structural requirements of Section 104.F →

Sec. 104.C. Alteration Work, Architectural. In any alteration, repair, installation, or change in or reconstruction of any building, the new work and any part of the building which becomes an integral part of, or is directly affected by the new work, shall meet the requirements of this Code.

The extent of an existing building that is considered as being directly affected by the new architectural alteration work shall be determined, using the following criteria in addition to the provisions of Section 502 i:

1 All new work added to the building that did not previously exist in the building

2. All portions of the building that are removed and replaced by new construction.

3 When 75% of the existing interior walls or partitions, as measured by the lineal footage of such interior wall and partition, are removed on a floor or when new interior walls or partitions are added which exceed 75% of the total lineal footage of the combined existing and new interior walls and partitions that would then be in place on a floor, all interior walls and partitions on the floor involved shall comply with this Code.

→ 4. Whenever alteration work involves extensive changes to elements such as walls, partitions, ceilings, etc., in substantially all portions of the structure, the structure as a whole shall comply with Section 104.F. →

→ Sec. 104.D. Additions to Buildings. 1. Vertical Extensions. Buildings may be extended vertically subject to the following requirements:

a. Building shall be used for the same occupancy classification as originally built or for less hazardous occupancy classification as determined from Table No. 5-1. The occupancy of the vertical extension shall comply with the requirements of this Code.

b. Way of departure facilities for the entire structure shall be of sufficient width for the total occupancy load of the building, including the vertical extension, and shall be computed on the basis of occupant loads as assigned in the code in effect at time of the original building erection.

c. All new construction work involved in the vertical extension shall conform to the requirements of this code.

d. The structure as a whole shall comply with Section 104.F.

e. All stairways in the building serving 3 or more stories shall be enclosed.

f. For height and area limitations see Article 5.

g. The original building and the vertical extension shall comply with the applicable provisions of Article 38.

## 2. Horizontal Extensions

a. Building may be used for higher life safety exposure, provided the structure as a whole meets the requirements in this code for such occupancy.

b. See Subsection 1 (b).

c. See Subsection 1 (c).

d. When the cumulative area of additions above grade exceeds 30% of the above grade area of the original building and the additions are structurally interconnected to or inadequately separated from the original building, the entire structure shall comply with Section 104.F.

e. See Subsection 1 (e).

f. See Subsection 1 (f).

g. See Subsection 1 (g).

→ Sec. 104.E. Change of Occupancy. The exit requirements shall pertain solely to the corridors and vertical enclosures of the floor or floors affected by the change in use, which requirements shall also include the vertical enclosure for the floor next above the affected floor or floors. This exit requirement shall not include the corridors and vertical enclosures for the floors below the affected floor or floors or the corridors above the affected floor or floors, except as otherwise stated herein.

1. Where a change in occupancy classification is proposed, the requirements of Table No. 5-1 shall apply.

2. When the change in use involves an increase in the occupant load of the floor or floors affected or when the change involves Occupancies A, B, C, D and E, the exit requirements shall include the vertical enclosures in accordance with Article 33 from the floor or floors in question to the ground at a street or public space. The exit requirements shall include the corridors of the floor or floors affected by the change in use and shall not include the corridors for the floors above or below the affected floor or floors.

3. Whenever the cumulative areas involved in change of occupancy to a greater life safety exposure from that for which the building was originally designed exceed 30% of the original above grade area of the building, the entire building shall be made to comply with Section 104.F.

*EXCEPTIONS: 1. When the occupancy change is to a Group A, B Div. 1 or B Div. 2 classification and Group B Div. 3 classification with an occupant load over 300, the entire building shall be made to comply with Section 104.F.*

*2. When the occupancy change is to a Group C classification the entire building shall be made to comply with the requirements of footnote 1 of Table No. 5-1 as well as with Sec. 104.F. ←*

→ Sec. 104.F. Lateral Force Design Requirements. The provisions of Sec. 2308 and Sec. 2314.D through .H shall apply to the entire building or structure. It shall be demonstrated that the entire building or structure is capable of resisting these forces and safeguarding the occupants and the public.

Consideration shall be given to all aspects of construction which may affect safety; including but not necessarily limited to the adequacy of connections between structural members, the adequacy of building separation and the security of unreinforced filler walls as well as parapets and appendages. ←

→ Sec. 104.G. Existing Occupancy. Buildings in existence at the time of the passage of this Code may have their existing use or occupancy continued, if such use or occupancy was legal at the time of the passage of the Code, provided the building construction met the requirements in effect at the time of construction and alteration and such continued use is not dangerous to life or is substandard under the Housing Code.

Any change in the use or occupancy of any existing building or structure shall comply with the provisions of Sections 306 and 502. No change in the percentage of lot occupied shall be permitted, whether by sale, conveyance or otherwise, so as to diminish the required size of yards, courts or passageways. ←

→ Sec. 104.H. Maintenance. All buildings or structures both existing and new, and all parts thereof, shall be maintained in a safe and sanitary condition. All devices or safeguards which were previously required and which are required by this Code in a building or structure when erected, altered, or repaired, shall be maintained in good repair. The owner or his designated agent shall be responsible for the maintenance of buildings and structures. ←

Sec. 105. Moved Buildings. Buildings or structures moved into or within the City shall comply with the provisions of this Code for new buildings or structures. See Article 16 for requirements in the Fire Zones.

Sec. 106. Alternate Materials and Methods of Construction. It is the declared intention of this Code to define minimum standards of construction which shall produce safe structures. No provisions of this Code are intended to prevent the use of any material, appliance, installation, device, arrangement, or method of construction not specifically prescribed herein, provided such alternate has been approved.

The Superintendent may approve any such alternate if he finds that the proposed designed satisfies structural and other Code requirements and that the material, appliance, installation, device, arrangement, method of work offered is, for the purpose intended, obviously equivalent or better in quality, strength, effectiveness, fire resistance, durability, safety, and for the protection of life and health, than that called for by provisions of this Code.

The Superintendent may require that sufficient technical data be furnished to substantiate any claims made by the applicant in regard to the use of any such alternate.

→ Sec. 106.1. Fees and Term of General Approval and Renewal Materials or Methods of Construction. Applications for the issuance and renewal, by the Superintendent, of general approvals of materials and methods of construction shall be accompanied by the proper fee as stated herein:

General Approval - Initial or reinstatement - \$20

General Approval - modification or revision - \$5

General Approval - renewal (every 2 years) - \$10

The fees specified are application fees and are not refundable, regardless of whether the action taken is an approval or a denial or whether a subsequent request for hearing by the Board of Examiners is filed.

Each approval shall become null and void 90 days after a request for confirmation of renewal has been sent and said confirmation together with the applicable renewal fee has not been received by the Superintendent. →

→ Sec. 106.1.A. Building Inspection Revolving Fund. All fees paid for issuance or renewal of approvals shall be deposited into a special Building Inspection Revolving Fund to be established by the City Controller. Funds from this revolving fund, subject to the approval of the Director and the Chief Administrative Officer, shall be utilized to provide information to the construction industry of said approvals and methods of construction and related services to the construction industry.

Any fees established by the Director for copies of approvals or publications summarizing said approvals shall also be allocated to said Building Inspection Revolving Fund to provide funds for said activities. Said Revolving Fund shall continue from year to year and shall not be included in the Cash Reserve Fund. →

→ Sec. 106.1.B. Validity of General Approvals. Any general approval shall be void if, after approval, the device, material or method of construction is found to deviate in any way from the approved device, material or method of construction, without having first obtained written authorization from the Superintendent.

Any approval may be suspended or revoked by the Superintendent if he finds the approved device, material or method of construction does not meet the requirement of Section 106 to such an extent that the approval should not have been granted. →

Sec. 107. Tests. Whenever there is insufficient evidence of compliance with the provisions of this Code or evidence that any material or any construction does not conform to the requirements of this Code, or in order to substantiate claims for alternate materials or methods of construction, the Superintendent may require tests as proof of compliance to be made at the expense of the owner or his agent by an approved agency.

Sampling, preparation of samples and tests shall be in accordance with the applicable standards of the American Society for Testing and Materials; unless otherwise provided in the approved specifications, by the Superintendent or in this Code.

Sec. 108. Plans Being Prepared at Time of Passage of This Ordinance to the Building Code. Nothing herein shall prevent the completion of plans and the construction of a building for which a designer, architect, civil or structural engineer, → or the design engineer for specialty areas of this Code such as heating and ventilation → holds a contract for preparation of plans and specifications, which plans are substantially completed at the time of the passage of this Ordinance, provided such plans and specifications would have conformed to the Code in effect prior to this Ordinance. Notification of such situations addressed to the Superintendent must, however, be filed in writing within 30 days after the enactment of this Ordinance. The notification shall be accompanied by one set of plans indicating that the drawings, both architectural and structural, are at least 50% complete.

The decision of the Superintendent as to the sufficiency and status of plans under this section shall be final. This section shall not apply to 1 or 2 story frame residences.

118

## ARTICLE 5

Table No. 5.1.

TABLE NO. 5.1  
OCCUPANCY CHANGES PERMISSIBLE WITHOUT CONFORMING  
TO ALL PROVISIONS OF PRESENT CODE

In	OCCUPANCY GROUP															
	A	B-1	B-2	B-3	C	D-1	D-2	D-3	E-1	E-2	E-3	E-4	F-1	F-2	F-3	J-1
A	P	P	P	P	P	P	PS	PS					PS	P	PS	P
B-1	PS	P	PS	P	P		PS	PS					PS	P	PS	P
B-2	PS	P	P	P	P		PS	PS					PS	P	PS	P
B-3					P		PS	PS					PS	P	PS	P
C					PS	P	PS	PS					PS	P	PS	P
D-1					PS	P	PS	PS					PS	P	PS	P
D-2					PS	P	P	P					PS	P	PS	P
D-3					PS	P	P	P					PS	P	PS	P
E-1									P	P						
E-2									PS	P	P	P				
E-3									P	PS	P	P				
E-4													P	P		
F-1													PS	P	PS	P
F-2					PS			PS					PS	P	PS	P
F-3													PS	P	PS	P
G												PS				
H					PS	PS	PS	PS						P	PS	P
I					PS											
J-1																

## LEGEND for Table No. 5.1

P—Occupancy change permitted subject to the requirements of Sections 502.1 and 1706.A, except for ducts, Tables No. 5-C, 5-D, and 5-E, and Article 38.  
 PS—Occupancy change permitted subject to requirements as set forth by the Superintendent, and the Bureau of Fire Prevention and Public Safety for those occupancies under their jurisdiction.

Where square is blank, change in occupancy requires substantial conformance with all present code provisions.

[1] Shall require conformance with Article 23 for seismic provisions. Same as used by State OAC. [2] Not including service stations and gasoline filling stations.

Sec. 204.2 Director may adopt Rules and Regulations. The Director of Public Works may adopt and promulgate rules and regulation supplemental to this Code and not in conflict with the intent therewith. → Such rules and regulations shall be generally accepted or approved methods and practices for the public health and welfare and safety of life, subject to re-examination and change if at any time such rules and regulations are found to be not in conformance with the intent or requirements of the Municipal Code.

The Director may administratively authorize the processing of applications involving Housing Code compliance actions initiated by the Department of Public Works, in a manner other than set forth in this Code, so as to effect said compliance most expeditiously; provided however that due process is assured all applicants. In this regard, the Director may reduce the time periods set forth in Sections 301.C.3, 302.D and 302.D.2 as they apply to a second application required by the Director to effect full compliance with the Housing Code if by so doing compliance with the Housing Code would be more expeditiously accomplished.



## APPENDIX 8

- If the use is changed two or more steps in the more hazardous direction, the building must be made to comply in all respects with the code requirements for new construction but still explicitly encouraging equivalent compliance alternatives

Ordinary repairs (as defined in the Massachusetts code) are exempted from Article 22

#### Operation of the Code

A set of guidelines (Appendix T) has been published to aid building departments and applicants in the use of Article 22

The single number hazard index for ranking occupancies, as adopted in Article 22, has been criticized by some building officials and by the model code groups. It is stated that the rankings do not account for all hazards and risks, and could lead to increased hazard without rising on the hazard index

Article 22 is an extremely interesting and innovative approach to the problem of regulating existing buildings. Since it has only been in use a short period of time, no definitive conclusions can yet be drawn on the effectiveness of this approach

#### State of Massachusetts

#### STATE OF MASSACHUSETTS

#### Code Provisions

Prior to June 1, 1979, Massachusetts had a mandatory State building code based upon the BOCA Basic Building Code which incorporated the 25-50% Rule. On June 1, 1979, a new section of the State code became effective. It is labeled Article 22, and is entitled "Repair, Alteration, Addition and Change of Use of Existing Buildings," replacing the 25-50% Rule and the change of occupancy regulation. A copy of Article 22 and Appendix T, Reference Data, are reproduced below

Article 22 is based on the Rehabilitation philosophy that anything can be done to an existing building that increases or does not reduce the performance of the building as it exists with the provision that certain minimum standards must be met with regard to structural adequacy, and number and capacity of exits

Article 22 discards completely any reliance on the value of the building or the work to be done. Instead, the requirements are based on ranking the various occupancy classifications in order of increasing hazard. Briefly, three levels of compliance are specified as a function of the hazard classification:

- If a building is rehabilitated (altered or repaired) with no change in use or with a change in use to an equal or lower hazard, regardless of the amount of work to be performed, if the work does not adversely affect the performance of the building, it may be accomplished with materials equivalent to those already in place. New systems should conform to the code for new construction "to the fullest extent practical," while encouraging the acceptance of equivalent alternatives. With a change in use to an equal or lower hazard, specific requirements for exit lighting, signs, alarms, and a smoke-proof but unrated stair enclosure must be complied with.
- If the use is to be changed a single step in the more hazardous direction, the entire building must meet the requirements of the code for new construction, with eight specified exceptions in the fire safety and structural areas. Equivalent compliance alternatives are encouraged.

## Article 22

### REPAIR, ALTERATION, ADDITION, AND CHANGE OF USE OF EXISTING BUILDINGS

any existing building or structure or part thereof, then such building or part thereof shall be made to comply with the pertinent provisions of this code for new buildings or structures. The provisions of this article shall apply to existing buildings and structures which have been occupied and/or used for a period of at least two (2) years.

For any proposed work covered by this article, the building owner shall cause the existing structure to be investigated and evaluated. The investigation shall provide sufficient information to satisfactorily determine the performance level of the existing structure with the proposed work incorporated.

**2202.2 Repair or alteration:** The repair or alteration of existing buildings and structures shall comply with the requirements of this article, except for ordinary repairs as provided for in Section 102.0.

**2202.3 Additions to existing buildings:** Additions to existing buildings and structures shall comply with the requirements of Section 2203.4.

**2202.4 Change in existing use**

**2202.4.1 Continuation of existing use:** The legal use and occupancy of any building or structure may be continued without change, except as may be specifically covered in Sections 405.1 and 405.2 of this code, or as may be deemed necessary by the building official for the general safety and welfare of the occupants and the public.

**2202.4.2 Change in use:** A change shall not be made in the use group of any building which would place the building in a different use group unless such building is made to comply with the requirements of this article.

**2202.4.3 Part change in use:** If a portion of the building is changed to a new use group, and that portion is separated from the remainder of the building with the required vertical and horizontal fire separation assemblies complying with the fire grading in Table 902, or with approved compliance alternatives, then the portion changed shall be made to conform to the requirements of this article.

If a portion of the building is changed to a new use group, and that portion is not separated from the remainder of the building with the required vertical and horizontal fire separation assemblies complying with the fire grading in Table 902 or with approved compliance alternatives, then the provisions of this article applying to each use shall apply to the entire building; and if there are conflicting provisions, the requirements securing the greater public safety shall apply.

**2202.5 Historic buildings:** Historic buildings shall meet the applicable provisions of Article 4 of this code.

**2202.6 Reference standards:** The building official may use Appendix T when determining compliance with this article.

#### SECTION 2200.0 SCOPE

**2200.1 General:** The intent of these provisions is to provide for the public safety, health and general welfare by permitting repair or alteration of, additions to, and change of use of, existing buildings and structures or parts thereof without requiring the existing building or structure to comply with all of the requirements of this code for new construction except where otherwise specified in this article. This article is not intended to prevent conformance with the requirements of this code for new construction.

**Note:** Specialized codes, rules, regulations and laws pertaining to repair, alteration, addition or change of use of existing structures promulgated by the various authorized agencies may impact upon the provisions of this article. Specialized state codes, rules, regulations, and laws include, but are not limited to, those listed in Appendix P.

#### SECTION 2201.0 DEFINITIONS

**2201.1 General:** Definitions shall be construed as being the same as defined in Article 2 except as follows:

**Building system:** Any mechanical, electrical, structural, egress, or fire protection system.

**Existing building or structure:** Any completed building or structure.

**Hazard index:** The rating of a use group for relative hazard as listed in Table 2203.

#### SECTION 2202.0 APPLICATION

**2202.1 General:** Where there are not specific provisions in this article applying to the repair, alteration of, additions to, and changes of use of

## MASSACHUSETTS STATE BUILDING CODE

2203.4 Additions: Additions to an existing building shall comply with all code requirements for new construction. The combined height and area of the existing building and new addition shall not exceed that permitted by this code for new construction. Where a fire wall complying with Section 907.0 is provided, the addition may be considered as a separate building. However, the existing building shall comply with Sections 2203.1 and 2203.2.

The addition shall not impose loads either vertical or horizontal which would cause the existing building to be subjected to stresses exceeding those permitted by this code for new construction.

2203.5 Increase in floor load: Any proposed increase in floor loading shall be investigated to determine the adequacy of the existing floor system to support the increased loads. If the existing floor system is found to be inadequate, it shall be modified to support the increased loads or the proposed allowable floor loading shall be reduced and posted.

2203.6 Hazardous conditions: The conditions or defects described in Sections 2203.6.1 through 2203.6.3 below shall be deemed to be hazardous and shall be corrected. This section shall not be construed to limit the authority of the building official under Section 2203.0.

2203.6.1 Structural: Any building or structure or portion thereof which is in imminent danger of collapse because of, but not limited, to the following factors:

- 1 dilapidation, deterioration, or decay;
- 2 faulty design and/or construction;
- 3 the removal, movement or instability of any portion of the ground necessary for the purpose of supporting such building; and
- 4 the deterioration, decay or inadequacy of the foundation.

2203.6.2 Number of exits: Less than two (2) approved independent exitways serving every story, except in one- and two-family dwellings and as modified in Sections 417.0 and 418.0 and 609.3.

2203.6.3 Capacity of exits: Any required door, aisle, passageway, stairway or other required means of egress which is not of sufficient width to comply with Section 608 and is not so arranged as to provide safe and adequate means of egress.

2203.7 No change in use

2203.7.1 Minor alterations and repairs: Alterations or repairs which do not adversely affect the performance of the building may be made with the same or like materials.

2203.7.2 New systems: When the proposed alteration does not involve a change in use group then further compliance with the requirements of the code for new construction is not required, except that any

## REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS

2202.7 Permit application: In addition to the requirements specified in Article 1, the application for a building permit shall include items of non or partial compliance with the requirements of this article, and compliance alternatives, if any are proposed, for approval by the building official. The building official shall respond to the acceptability of any proposed compliance alternatives within thirty (30) days of the filing of the building permit application.

2202.8 Documentation: Whenever action is taken on any building permit application to repair, make alterations, or change the use or occupancy of an existing structure, and when said application proposes the use of compliance alternatives, the building official shall insure that one (1) copy of the proposed compliance alternatives, including applicable plans, test data or other data required for evaluation, be submitted to the Commission, along with a copy of the building permit application and the building official's decision regarding the proposed compliance alternatives.

## SECTION 2203.0 REQUIREMENTS

2203.1 Buildings exceeding code requirements for new construction: Existing buildings and structures which, in part or as a whole, exceed the requirements of this code, may, in the course of compliance with this article, reduce or remove in part or total, features not required by this code for new construction, provided, however, that such features were not a condition of prior approval.

2203.2 Buildings not meeting code requirements for new construction: Provided their present degree of compliance to the code is not reduced, existing buildings and structures which, in part or as a whole, do not meet the requirements of this code for new construction may be altered or repaired without further compliance to the code by utilizing the provisions of this article.

2203.3 Compliance alternatives: Where compliance with the provisions of this code for new construction, required by this article, is impractical because of construction difficulties, acceptable compliance alternatives may be used. Appendix T contains some acceptable compliance alternatives. The building official may accept compliance alternatives other than those listed in Appendix T.

2203.3.1 File: In accordance with Section 2202.8, the building official shall provide the Commission with information regarding compliance alternatives accepted or rejected by him. It is the intent of the Commission to amend those acceptable compliance alternatives listed in Appendix T.

## MASSACHUSETTS STATE BUILDING CODE

## REPAIR, ALTERATION ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS

new building systems shall conform to the code for new construction to the fullest extent practically in accordance with Section 2203.3 of this article.

**2203.7.3 Increase in occupancy load:** If an increase of greater than fifteen (15) per cent in the occupancy load is involved, the building shall comply with this code for new construction with regard to egress requirements. Existing exitway facilities may be used in contributing to the total calculated egress requirements.

**2203.7.4 Increase in number of dwelling units:** If the number of dwelling units in buildings of use group R (residential) is increased, the building shall comply with Sections 2203.8.1.1 through 2203.8.1.5 inclusive.

**2203.7.5 Places of assembly:** Provisions herein contained shall not prohibit the alteration of a building heretofore occupied as a place of public assembly for such continued use provided the seats, aisles, passage ways, balconies, stages, appurtenant rooms and all special permanent equipment comply with the requirements of Sections 417.0 and 418.0.

**2203.8 Change in use group:** Any change in use to use group I (institutional) shall comply with the requirements of this code for new construction. For all other changes in use, the building official shall first determine whether the alteration results in a lesser, equal, or greater hazard in accordance with Table 2203. Change in use group shall be evaluated relative to the last known legal occupancy of the building.

**2203.8.1 Equal or lesser hazard:** When the proposed use is of equal or lesser hazard, further compliance with the code for new construction is not required except as specified herein. Alterations or repairs to an existing building or structure which do not adversely affect the performance of the building may be made with like materials. Any proposed change to the existing building or change in type of contents of the existing building shall not increase the fire hazard to adjacent buildings or structures if the fire hazard to adjacent buildings or structures is increased, then the requirements of Table 214 for exterior walls shall apply.

**2203.8.1.1 New systems:** Any new building system shall conform to this code for new construction to the fullest extent practical in accordance with Section 2203.3 of this article.

**2203.8.1.2 Exit signs and lights:** Exit signs and lights shall be provided in accordance with Section 623.0.

**2203.8.1.3 Means of egress lighting:** Means of egress lighting shall be provided in accordance with Section 624.0.

**2203.8.1.4 Fire alarm systems:** Fire alarm systems shall be provided in accordance with Sections 1216.0 and 1217.0.

**2203.8.1.5 Enclosure stairways:** Open stairways shall be enclosed except as otherwise permitted by Article 6. For the purpose of this section only, there shall not be a minimum fire-resistance rating for the enclosure. All doors in the enclosure shall be self-closing.

**2203.8.1.6 Places of assembly:** All buildings of use group A (assembly) shall comply with Sections 417.0 and 418.0.

**2203.8.2 Greater hazard**

**2203.8.2.1 Increase in one hazard index number:** When the proposed change in use results in a use group one (1) hazard index number higher than its present use group as defined in Table 2203, the entire building must meet the requirements of the code for new construction with the following exceptions:

- a. Compliance is required with Sections 213.0 and Table 902 except that floors providing horizontal separation in buildings of Types 3 and 4 construction equipped with a fire suppression system shall have a fire-resistance rating of not less than one (1) hour.
- b. Further compliance is not required with Section 302.2.
- c. Further compliance is not required with Sections 305.2 and 305.3, e.g. a change in use is allowed in an existing structure even if it exceeds the area and height limits of Table 305.
- d. Further compliance is not required with Section 315.1.
- e. Compliance is required with Section 616.0 except that existing exitway stairways may be used as part of the required egress for the new use, provided that the width is of sufficient capacity for the occupancy load, they are structurally sound, and that the enclosures in buildings of Types 3 and 4 construction shall have a fire-resistance rating of not less than one (1) hour. Enclosures in buildings of Type 1 and 2 construction shall have a fire-resistance rating of not less than two (2) hours. Where stair exitway doors are doors to an apartment or office, they need not swing onto the landing.
- f. For earthquake resistance and liquefaction, further compliance to Sections 718.0 and 723.0 is not required. Structural alterations may be made to existing buildings and other structures, but the resistance to lateral forces shall not be less than that before such alterations were made, unless the building or structure as altered meets the requirements of this code for earthquake loads.
- g. Further compliance is not required with Section 815.0.
- h. Further compliance is not required with Sections 868.0 and 907.0. The height above the roof of existing fire, party and exterior walls need not comply with these sections.

**2203.8.2.2 Increase of two or more hazard index numbers:** When the proposed change in use results in a use group two (2) or more hazard index numbers higher than its present use group as defined in Table

## REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS

2203, the entire building must meet the requirements of this code for new construction.

Table 2203  
HAZARD INDEX

Scale: 1-8 (1 is lowest; 8 is highest hazard)		
Use group*	Description	Index no
A-1-A	Theatre with stage	6
A-1-B	Theatre without stage	5
A-2	Night club	7
A-3	Restaurant	5
	Lecture halls, recreation centers, museums, libraries, similar assembly buildings	4
A-4	Churches and schools	4
B	Business	2
F	Factory and industrial	3
H	High hazard	8
I-1	Institutional restrained	5
I-2	Institutional incapacitated	4
M	Mercantile	4
R-1	Hotels, motels	2
R-2	Multi-family	2
R-3	1 and 2 family	2
S-1	Storage, moderate hazard	3
S-2	Storage, low hazard	1

\*See Sections 2203.0 thru 2212.0 and Appendix T

### SECTION 2204.0 OTHER CODE SECTIONS PERTAINING TO EXISTING STRUCTURES

2204.1 General: The following is a list of some additional code sections which may pertain to repair, alteration, addition, or change of use of existing structures

101.1	Applicability
102.0	Ordinary repairs
103.0	Installation of service equipment
104.0	Maintenance
105.0	Change in existing use
106.0	Alterations and repairs
108.5.1	Duties and powers of the building official and state inspector, inspection and certification, specified use groups
111.1	Preliminary inspection
111.5	Inspection, existing buildings
116.0	Demolition of structures
117.0	Moved structures
119.2	Certificate of use and occupancy, buildings or structures hereafter altered
120.0	Posting structures

## MASSACHUSETTS STATE BUILDING CODE

121.0	Violations
123.0	Unsafe structures
124.0	Emergency measures
302.0	Restrictions within the fire limits
309.0	Street encroachments
403.0	Fire prevention code
405.0	Existing buildings
417.2.2	Places of public assembly, superimposed theatres
417.2.3	Places of public assembly, frame construction
424.2	Group residence, existing buildings
435.2	Summer camps for children, new and existing occupancies
438.0	Historic buildings
505.0	Existing buildings (light, ventilation and sound transmission control)
600.1	Means of egress, scope
600.2	Modification of exitway requirements
605.0	Maintenance of exitways
621.0	Fire escapes
705.0	Structural and foundation loads and stresses, existing buildings
716.6.7	Earthquake loads, minor alterations
804.4	Heretofore approved materials
924.6	Exterior trim restrictions, existing combustible construction
928.2	Roof coverings, existing roofs
1005.0	Chimneys, flues, and vent pipes, existing buildings
1103.0	Mechanical equipment and systems, existing buildings
1200.3	Fire protection systems, maintenance
1200.8	Fire protection systems, periodic inspections and tests
1201.1	Fire protection systems, plans and specifications required
1201.2	Fire protection systems, plans and specifications approved by other agencies
1212.7	Standpipes for buildings under demolition
Article 13	Precautions during building operations
1403.0	Unsafe and unlawful signs, notices
1404.0	Existing signs
1405.0	Signs, maintenance and inspection
2001.3	Energy conservation, existing buildings
2001.4	Energy conservation, exempt buildings
2002.0	Energy conservation, existing buildings
2015.0	Lighting power limits for existing buildings
2100.2.4	Building code provisions for one and two-family dwellings, alterations to existing buildings

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

## REFERENCE DATA FOR REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS

## PART ONE—GUIDELINES FOR APPLICATION

## T-101 0 Purpose

T-101.1 Intent of Article 22: The purpose of this guideline is to provide guidance to users of the Massachusetts State Building Code as to techniques of acceptable practice which can be used to assess the acceptability of various methods of meeting the intent of the code provisions of Article 22 on a case-by-case basis. The purpose of the code provisions in Article 22 and this guideline is to allow repair, alteration, addition and change of use of existing buildings without requiring the entire building to be brought up to new construction requirements, while still providing for the public health, safety and general welfare. The provisions of Article 22 and this guideline recognize that the provisions of the Massachusetts State Building Code for new construction reflect the latest improvements in materials, construction techniques, standards of living and safety and therefore may preclude the repair, alteration, addition, or change of use of existing buildings that have demonstrated their usefulness and safety.

## T-102 0 Scope

T-102.1 Techniques: This guideline is intended to demonstrate techniques of analysis and compliance with Article 22 of the Massachusetts State Building Code in the repair, alteration, addition, and change of use of existing buildings.

## T-103 0 Statement of concept

T-103.1 General Conditions: Conceptually, it is the intent of Article 22 and these guidelines to allow repair, alteration, addition, or change of use of existing buildings without meeting all new construction requirements under the following general conditions:

- 1 all hazardous conditions must be corrected;
- 2 the existing building becomes the minimum performance standard; and
- 3 the degree of compliance of the building after changes must not be below that existing before the changes, except that nothing in this section will require compliance with requirements more stringent than that required for new construction.

## T-104 0 Implementation

T-104.1 Framework: Implementation of the above concept requires that a framework be established for evaluating the condition of the building; determining the potential for modification; and establishing the acceptability of proposed changes.

T-104.2 Evaluation of existing building: Evaluation of existing conditions in a structure is required to determine the existence of any hazardous conditions,

which must be corrected; and to provide a basis for evaluating the impact of the proposed changes on the performance of the building.

The following list of evaluation tools described in Sections T-104.2.1 through T-104.2.7 of this appendix can be used for determining the condition of the structure. However, this list is not necessarily complete and the use of other methods should not be precluded.

T-104.2.1 Available documentation of existing building: Prime sources of design information for existing buildings are the architectural and engineering drawings and specifications used in the construction of the building. Although the passing of time often obscures the identities of depositaries of such documents, the following are likely prospects in attempting to locate such information.

- 1 If the building is currently in use, an individual or office responsible for its management may have retained drawings and specifications to facilitate maintenance. A building manager, resident engineer, superintendent, custodian, stationary engineer or plant engineer may be the most direct contact at the building site.
- 2 Other potential sources (especially if the building is not in use) include the original designer architect or engineer.
- 3 The building department which issued the permit for construction may have documentation.
- 4 Documentation may have been retained by the general contractor or numerous subcontractors. This presents the possibilities of the mason, carpenter, plumber, electrician, HVAC installer, steel erector, etc., as well as manufacturers of component parts.
- 5 In the case of large corporations or government agencies, a separate contracting officer may have developed a technical file on the erection of a building.
- 6 In some cases, individual consultants are contracted to serve as "clerk-of-the-works" and pursue the inspection of a building project from start to finish with the keeping of a file likely.
- 7 Insurance companies sometimes maintain drawings or records of their insured buildings.
- 8 Historical or archaeological societies may have considered a building to be important enough to develop a file of documentation.

T-104.2.2 Field surveys: Having drawn upon available documentation to help evaluate a building's condition, such documentation may be augmented by on site data acquired through field survey. The most obvious approach is to make use of detailed visual examination to confirm and/or alter any previously available information pertaining to the building.

T-104.2.3 Testing: Testing is a tool that may be used in evaluating the condition of a building or structure or parts thereof when other methods of evaluation will not suffice. Testing may be initiated voluntarily on the part of the permit applicant or may be required by the building official in the absence of approved rules as indicated in Section 800.6 of the code. This section points out that "the building official shall make or cause to be made the necessary tests and investigations, or he shall accept duly authenticated reports from recognized authoritative sources." The costs of all such tests are to be borne by

## MASSACHUSETTS STATE BUILDING CODE

T-104.3.1 Data on archaic systems: Performance data on architectural and structural systems being encountered in existing buildings in the Commonwealth are tabulated in part four of this appendix. This data can be compared to the proposed altered systems to determine if the performance is being adversely affected.

T-104.3.2 Compliance alternatives: Alternate solutions tabulated in part two of this appendix were developed from appeal data and from accepted practice. The list is not all inclusive and should not preclude consideration of other alternatives.

T-104.3.3 Analysis methods: Analytical methods based on good engineering practice may be used to determine changes in performance levels.

T-104.3.4 Test methods: Test procedures as discussed in Sections T-104.2.3 through T-104.2.6 of this appendix can be used to evaluate the performance of existing construction.

T-104.3.5 Professional judgments: Professional judgment based on previous experience with similar buildings should be used to the fullest extent possible.

## PART TWO—SUGGESTED COMPLIANCE ALTERNATIVES

## T-201.0 Purpose and scope

T-201.1 Purpose: The purpose of this reference is to assist the building official and those regulated by this code in judging the acceptability of compliance alternatives to specific code provisions required by the code.

T-201.2 Applications: This reference contains generally acceptable compliance alternatives and examples. The examples are solely for the purpose of illustrating principles which can be applied to the solution of code compliance problems and are not necessarily acceptable under all circumstances. It is recognized that all building systems interact with each other. Therefore, any consideration of compliance alternatives must take into account all existing and proposed conditions to determine their acceptability. The principles applied can be used for the solution of similar compliance problems in other buildings and occupancy groups. Commentaries are provided where the philosophy in establishing the alternatives is not obvious. The examples were developed from appeal data and accepted practice. They are not all inclusive and should not preclude consideration of other alternatives.

Note: It is anticipated that additional compliance alternatives will be added to this reference through the mechanism of appeal decisions and from results of research being conducted by various organizations in the field of relative performance of life safety systems.

## T-202.0 Compliance alternatives for egress requirements

## T-202.1 Number of exits

## T-202.1.1 General compliance alternatives

1. Provide connecting fire balconies.
2. Provide alternate egress facilities (windows, etc.).

## APPENDIX T

the permit applicant and should therefore be required by the building official only when other methods of evaluation prove inadequate or insufficient. Such testing should be conducted by an approved testing agency under the supervision of a registered architect or engineer. The report of the tests shall be submitted to the building official and shall include the details of test procedures, references to any accepted test standards used, the results of the tests and any conclusions drawn from the test results.

T-104.2.4 Field tests: Both non-destructive and destructive test procedures can be applied to evaluate the condition of a building.

T-104.2.5 Non-destructive testing: This includes techniques where the structural integrity of the building is not affected, such as the following:

1. analyzing various portions of the building to determine dimensions, types and condition of materials, etc.;
2. portable apparatus for impact testing;
3. load application short of failure to determine capacity of materials and components;
4. magnetic methods for detecting flaws in ferrous metals;
5. proximity magnetometers (locating rebars in concrete concealed ferrous fasteners, etc.);
6. electronic means for measuring the sonic modulus of elasticity of concrete and masonry in assessing its soundness;
7. ultrasonic transmission or reflective methods in detecting flaws in various materials; and
8. x ray or infrared ray photographic techniques used to evaluate portions of elements whose integrity is questionable.

T-104.2.6 Destructive testing: In destructive testing a sample of the building could be removed and tested (e.g., concrete core), or components of the building could be reconstructed and tested in the laboratory.

T-104.2.7 Laboratory analysis: In some cases, tests can be performed in the laboratory. Such tests might include the following:

1. chemical or metallurgical tests;
2. optical or electronic microscope examination which can help identify and evaluate the soundness of materials where decay or other molecular degradation is involved;
3. conventional laboratory tests for determining physical properties (strength, ductility, absorption, solubility, permeability, strength, stiffness, etc.); and/or
4. testing of a scale model of the building (computer model, wind tunnel model, etc.).

T-104.3 Evaluation of change in performance levels: It is necessary to determine if the level of performance of the building after alteration is below that which existed before the change. The hazard level could be increased for certain attributes (such as fire safety) while decreased for other attributes (such as floor loads) for a given alteration. The evaluation of the change in hazard levels of each attribute can be accomplished using various tools singly or in combination as described below in Sections 104.3.1 through 104.3.5.

## APPENDIX 1

## MASSACHUSETTS STATE BUILDING CODE

- 3 Provide a fire escape
- 4 Provide fire rated areas of refuge

T-202.1.2 Examples: Example 1 involves a five-story "row house" of occupancy group B without a fire suppression system and with only one means of egress.

Solution A. Add one or more fire escapes as may be necessary to provide all tenants with reasonable access to two means of egress in separate directions. Access to a street, public way or area of refuge shall be provided at the termination of the fire escape.

Solution B. Add connecting fire balconies across fire walls if the above solution is impractical due to construction difficulties.

Example 2 involves a building of group R-2 occupancy with an apartment in the basement. There is only one means of egress from the basement.

Solution A. Provide egress windows in each apartment that comply with Section 609.4

## T-202.2 Travel distance

## T-202.2.1 General compliance alternatives

- 1 Add detection system
- 2 Add a partial fire suppression system
- 3 Add smoke doors
- 4 Increase fire-resistance rating of corridor walls and doors

T-202.2.2 Examples: This example involves a four story building of occupancy group R-2 without a fire suppression system. The length of exitway access travel is 150 feet.

Solution A. Add a partial fire suppression system off the domestic water supply (if adequate) in the exit access corridor.

Solution B. Subdivide corridor into segments less than 100 feet with smoke doors.

Solution C. If not required by other sections of the code, install smoke and fire detectors with audible alarms in the corridor.

Solution D. Increase the fire-resistance rating of the exit access corridor from one hour to two hours and provide 1½ hour "B" label self-closing or automatic closing fire doors in all openings into the corridor.

## T-202.3 Enclosure of exitways

## T-202.3.1 General compliance alternatives

- 1 Improve enclosure of exitway.
- 2 Add a partial fire suppression system.
- 3 Add a detection system

T-202.3.2 Examples: This example involves a four-story row building of occupancy group R-2 with connecting fire balconies and an interior stair. The stair is enclosed with wood lath and plaster on wood stud partitions and paneled doors.

Solution A. Cover partitions on the apartment side with ½" Type X gypsum

wallboard or its equivalent. Replace or build up panel doors until minimum solid portion is 1½" and install self-closers.

Solution B. Provide a heat and smoke detection system in the stairwell with an alarm audible to all tenants. Provide self-closers on all stairwell doors.

Solution C. Provide a partial fire suppression system in the stairwell off the domestic water supply (if adequate). Provide self-closers on all stairwell doors.

T-203.3.3 Commentary: The above example, while pertaining to a four story group R-2 building, can also be applied to other buildings of various height and occupancies. The principle that the degree of compliance may not be reduced should be remembered. If the existing enclosure is of fire-resistive construction, it must be maintained. The primary principle to remember, in the required enclosure of exitway, is that an enclosure must be provided, whether fire-resistive or not, so as to provide a smoke barrier. The purpose of providing a smoke barrier is to prevent the passage of smoke from a fire on one floor to the exitways and exit access corridors of other floors and thus rendering them unusable for egress. This principle is illustrated by solutions A, B, and C in the above example.

## T-203.0 Compliance alternatives for fire hazards

## T-203.1 Fire separations and partitions

## T-203.1.1 General compliance alternatives

- 1 Improve fire separation
- 2 Add a fire suppression system
- 3 Add a detection system

T-203.1.2 Examples: Example 1 involves a three story, Type 3A building, of occupancy group M on the first floor and occupancy group B on the second and third floors. The required separation is three hours.

Solution A. Add a fire suppression system to the first and second floors.

Solution B. Add ½" Type X gypsum wallboard or its equivalent to the underside of the second floor and install a system of smoke and heat detectors with audible alarms on the first and second floors.

Example 2 involves the separation between two tenants of wood lath and plaster on a wood studs partition. The required separation is one hour.

Solution A. Add ½" Type X gypsum wallboard or its equivalent to either side of the existing partition.

Example 3 involves a building of occupancy B with unrated exit access corridors.

Solution A. Install a partial fire suppression system in the exit access corridors.

Solution B. Add ½" Type X gypsum wallboard or its equivalent to either side of the corridor partition and install self-closers on all corridor doors.

Solution C. Install a smoke and heat detection system in the corridor with an alarm audible to all tenants on the floor and install self-closers on all corridor doors.

## T203.3 Openings and exterior wall protection



## MASSACHUSETTS STATE BUILDING CODE

Table T-1 (Cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Athletic equipment	3	F
Manufacture	3	M
Sales	6, 5 or 4	A-1-A, A-1 B, A-3
Auditoriums	2	B
Automobiles & other motor vehicles	2	B
Gasoline service station	3	S-1
Rental agency within a building	3	S-1
Repair incidental to auto sales	3	S-1
with limitations	3	F
Wrecking -	3	F
Washing	3	F
Awning manufacturer	3	M
Baked goods shop	3	F
Bakeries	3	F
Banks	2	B
Banquet halls	2	B
Barber shops	2	A-3
Beauty shops	2	B
Beverages	2	B
Bottling	3	F
Manufacture	3	F
Alcoholic	3	H
Less than 0.5% alcohol @ 60°	3	F
Bicycle	3	F
Manufacture	3	S-1
Rental or repair conducted	3	M
within a building	3	A-3
Sales	3	F
Billiard parlor	3	F
Blacksmith shops	3	R 1 or R-2
Blueprinting, etc., establishments	3	F
Boarding house	3	F
Boats or ships	3	F
Building or repair of boats	3	F
Bone distillation	3	F
Borling alders	3	A-3
Broom or brush manufacture	3	F
Building materials	3	M or S-1
Wholesale business in roofed structures	3	A-3
Bus terminals or stations	4	A-3
Business schools or colleges	4	A-3
Camera & other photo equipment	3	F
Manufacture except film labs	3	M
Sales	3	F
Canvas or canvas products	3	F
Manufacture or repair	3	F
Carpet & rug	3	H, F
Cleaning establishments	3	F
Manufacture or repair	3	F
Catering for outside consumption	3	F

## APPENDIX Y

## T-203.2.1 General compliance alternatives

1. Add fire suppression system
2. Improve fire resistance
3. Remove or improve openings

T-203.2.2 Examples: Example 1 involves a two-story Type 4B building, of occupancy M on the first floor with the basement and upper floors used for storage. The distance between the building and the side lot line is five feet and between it and the adjacent building is ten feet. The adjacent building is of Type 4B construction and of occupancy group R-2. The former occupant was a grocery store; the new occupant is a hardware store.

**Solution A** Install a deluge sprinkler system along the interior side of the wall affected.

**Solution B** Add 2" Type X gypsum wallboard to interior side of the wall affected.

Example 2 is the same as example 1 but with doublehung wood windows in affected wall.

**Solution A** Remove windows and close opening with one hour fire resistive construction.

**Solution B** Remove windows and install fire windows

**Solution C** Install a deluge sprinkler system as in solution A to example 1

PART THREE—DETAILED CLASSIFICATION OF OCCUPANCY BY  
HAZARD INDEX NUMBER AND USE GROUP

This part provides a more detailed guide for users of the code to determine hazard index numbers and use groups for various types of occupancies. It supplements Article 2 and Table 2003 contained in Article 22.

Table T-1  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Advertising displays manufacture including billboards	3	S-1
Airport or other aircraft landing or service facility (see also Helicopter landing facility)	3	F
Amusement park, indoor	4	A-3
Aqueduct	3	F
Crematorium	2	F
Hospital, mental, pound	3	F
Appliances	3	M
Appliances	3	A-3
Sales	4	H
Arenas	3	F
Asphalt	3	F
Processing and products manufacture	3	H

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Dormitories	2	R 1 or R 2
Dressmaking shops, custom	8	H
Drinking places (see Eating & drinking establishments)		
Drive-in restaurants	5	A-3
Drive-in theaters	4	A-5
Drug stores	3	M
Dry cleaning & dyeing establishment	8 or 3	H or F depending on solvents used
Dwellings (see Residences)		
Eating or drinking establishments	5	A-3
Lunchrooms, restaurants, cafeterias, etc., primarily enclosed	4	A-3
Drive-in	7	A-2
With entertainment or dancing		
Electric	3	F
Power or steam generating plants	3	F
Substation		
Electrical appliances, bulbs, wiring, supplies, etc.	3	F
Manufacture		
Sales	3	F
Electronic components & supplies	3	M
Manufacture or repair	3	F
Feathers	8	H
Curing, dyeing, washing or bulk processing	8	H
Manufacturing exclusive of above		
Felt	3	F
Curing, dyeing, washing or bulk processing	3	F
Products manufacture, exclusive of above		
Fertilizers, manufacture	3 or 8	H
Film, photographic, manufacture	3 or 8	For H
Storage and studios	2	For H
Fire station	3	B
Fish processing	3	F
Florida shops	3	M
Food		
Product processing except meat and fish	3	F
Retail sales	3	M
Fraternities or sororities	2	R 1 or R-2
Funeral establishments	4	A-3
Fur		
Curing, dyeing, finishing, tanning	8	H
Products manufacture exclusive of above	3	F
Garage (see Parking garage)		
Garbage incineration or reduction	3	F
Garden supplies, produce or flowers	3	M
Gas	8	H
Manufacture		
Public utility stations for metering or regulating	2	B

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Cemeteries	3	F
Crematory	3	S-2
Mausoleum, crypt, columbarium	1	A-4
Mortuary chapel in cemetery	4	
Ceramic products manufacture including pottery, small glazed tile, & similar items	3	F
Charcoal, fuel, briquettes, or lampblack manufacture	8	H
Chemicals		
Packaging	8 or 3	H or F depending on nature of materials involved
Manufacture		
Churches or other places of worship	8 or 3	H or F depending on nature of materials involved
Circuses, temporary	4	A-3
Cleaning (see Drycleaning & dyeing, Laundries; Automobiles, washing) Clothing.	4	
Manufacturing		
Rental Establishment	8 or 3	H or F depending on nature of materials involved
Retail sales	3	M
Tailoring, custom manufacture or repair (see also Feathers; Felt; Fur; Leather)	3	H
Clubs	3	M
Private	4	A-3
Nightclubs (see Eating & drinking establishments)		
Coal, coke or tar products, manufacture	8	H
Colleges & universities	4	A-4
Classroom buildings	2	R 1
Dormitories	2	R 1
Fraternities or sororities	4 or 2	A 3 or B
Community centers		
Convalescent homes (see Nursing homes)		
Convents	2	R 1
Cosmetics or toiletries manufacture	8	H
Cotton ginning	8	H
Cotton wadding or linters manufacture	8	H
Courthouses	2 or 4	B or A-3
Crematoriums		
Animal	3	F
Human	3	F
Dance halls	7	A-2
Day care agencies	4	I-2 or A-4
Day nurseries	4	I-2
Dental offices (see Medical & dental)		
Department stores	3	M

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Laundries		
Hand laundry	2	B
Self service pick-up and delivery station of laundry or dry cleaner	2	B
Steam laundries without limitations	3	F
Leather		
Curing, dyeing, finishing or tanning	3	F
Product manufacture exclusive of above	3	F
Libraries	3	A-3
Linoleum or oilcloth manufacture	4	F
Liquor sales, package	3	M
Luggage manufacture	3	F
Lumber (see Wood)		
Manufacturing	3 or 8	F or H
Matches manufacture and renovation	8	H
Mattress manufacture and renovation	3	F
Meat		
Markets	3	M
Slaughtering or packaging	3	F
Medical and dental	2	B
Offices		
(See also Laboratories; Orthopedic and medical appliances; Hospitals)		
Meeting hall	4	A-3
Metals, manufacture	3	F
Reduction, refining or smelting	3	H
Monasteries	2	R-1
Motels	2	R-1
Motor freight stations		
(See Trucking terminals)		
Museums	4	A-3
Musical instruments manufacture	3	F
Newspaper publishing	3	M
Wrestling	3	F
Woolen goods manufacture	4	I-2
Woolen goods	3	F
Offices	3	F
Optical manufacture		
Optical equipment or similar	3	I-2
Precision instruments manufacture		
Orthopedic or medical appliances manufacture	3	F
Paint, turpentine or varnish		
Manufacture	8	H
Spraying booths	8	H
Paper products manufacture	3	F
Patish houses	4	A-3
Parking garages	3	S-1
Petroleum or petroleum products		
Refining	8	H
Storage	3	S-1
Pharmaceutical products manufacture	3	F
Photography studio	2	B
Plastics		
Products manufacture	8	H
Raw, manufacture	8	H

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Storage		
2500 cu. ft. or less	3	S-1
More than 2500 cu. ft.	8	H
Gasoline service stations		
(See Automobiles)		
Gelatin manufacture	3	F
Generating plants, electric or steam	3	M
Gift shops	3	F
Glass products form previously manufactured	3	F
Glue manufacture		
Golf		
Indoor courses or driving ranges	4	A-3
Gymnasiums	4	A-3
Gypsum manufacture	3	F
Grain storage	8	H
Hair		
Curing, dyeing, washing, bulk processing	3	F
Product manufacture exclusive of above	3	F
Hardware		
Manufacture	3	F
Retail sales	3	M
Hat bodies manufacture	3	F
Helicopter landing facility, rooftop	3	S-1
Home occupations	2	B
Homes for the aged	4	I-2
Hotels	3	F
Hospital		
Including convalescent, nursing or rest homes, and		
sanatorium, provided custodial care is not		
provided for drug addicts, alcoholics,		
mentally ill or mentally deficient		
For care of drug addicts, mentally ill or		
mentally deficient		
Research or teaching laboratories		
(See also Animal hospital)		
Holists	2	B
Ice manufacture (dry or natural)	3	R-1
Ice melting risks	3	F
Incineration or reduction of garbage, refuse,	4	A-3
or dead animals		
Industrial uses (see specific items)		
Without resulting noise, vibration, special danger,		
hazard, dust, smoke, fumes, etc.		
Other than above	3 or 8	F or H
Ink or inked ribbon manufacture	3	F
Jewelry		
Kennels (see Animal)		
Laboratories		
Research laboratory not accessory		
to school or hospital	2	B
Scientific research or teaching laboratory,		
non-profit, accessory to school or		
hospital subject to limitations	2	B

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Sewage		
Disposal plant	3	F
Pumping station	3	F
Shoddy manufacture	8	H
Shoes		
Manufacture	3	F
Repair shop	2	B
Silverware, manufacture, plate or sterling	3	F
Size manufacture	3	A3
Skating rinks	4	A3
Soap and detergents		
Manufacturing, including fat rendering	8	H
Packaging	3	F
Solvent extracting	8	H
Sporting or athletic goods		
Manufacture	3	F
Stores	3	M
Stables	4	S1
Stadiums		
Wholesale business including accessory storage other than flammable liquids, gases and explosives in roofed structures	3 or 1	A5
Stores (see Retail stores; or specific items)		
Tailor shops, custom	2	B
Tanning (see Leather; Fur)		
Taxidermist shops	3	M
Telephone exchanges		
Automatic	2	B
Non-automatic	2	B
Television	3	M
Sales	6	A1b with scenery
Studios	5	A1b no scenery
	2	B no audience
Textiles		
Manufacture, including knit goods, yard goods, thread or cordage; spinning, weaving, dyeing and printing	3	F
Shoddy manufacture	8	H
Theaters	5	A1a with scenery
	3	A1b no scenery
	3	F
Tires, manufacture		
Tobacco products manufacture including curing	3	F
Tools and hardware	3	M
Manufacture	3	F
Sales		
Toys	3	F
Trailer park (see also Mobile homes)		
Truck	3	S-1
Repairs	3	M
Sales		

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Police stations	2	B
Post rooms	2	A-3
Post offices	2	B
Printing		
Plant	3	F
Printing or newspaper publishing	3	F
Prisons & other correctional or detention institutions	5	I1
Pumping station or substation		
water or sewage	2	B
Radio		
Sales	3	M
Studios with audience	3	A-1B
Studios without audience	5	B
Railroad	2	
Freight terminal	3	S1
Passenger station	4	A3
Recreation		
Center indoor	4	A-3
Community center building	4	A-3
Rectories	2	R1
Residences		
One family	2	R3
Two-family	2	R3
Apartment	2	R2
Temporary dwelling structure	2	R3
Boarding or lodging house	2	R1 or R2
Dormitory	2	R1 or R2
Fraternity or sorority	2	R1 or R2
Hotel, motel, apartment hotel with accessory services	2	R1
Convents, monasteries, factories	2	R1
Research laboratories (see Laboratories)		
Restaurant, lunch room, canteen or other establishment primarily for eating	5	A-3
Retail business	3	M
Stores with combustible or flammable goods constructing a high hazard	8	H
Rubber		
Manufacture (natural or synthetic) including lites, tubes or similar products	8	H
Products (exclusive or processing) including washers gloves, footwear, bathing caps and like	3	F
Sanatoriums		
Not providing custodial care for drug addicts, alcoholics, mentally ill or mentally deficient	4	I2
Providing care for above	5	I1
Schools	4	A-1
Seminaries	4 or 2	A-4 & R1
Settlement houses (depending on nature of activities)	4 or 2	A3 or B

## MASSACHUSETTS STATE BUILDING CODE

furnace slag, cinders containing not more than twenty (20) per cent of combustible material, burned clay or shale

T-402.2.2.3 **Class 2 concrete:** Concrete of Class 2 shall be so proportioned as to have a strength of at least fifteen hundred (1500) pounds psi, the coarse aggregate consisting of sandstone, granite, quartzite, siliceous gravel or other similar material not over one (1) inch in size.

T-402.2.2.4 **Masonry:** Masonry shall be laid in lime-cement or cement mortar, or approved masonry cement mortar, except that masonry of gypsum tile shall, and masonry of structural clay tile may, be laid in gypsum mortar. Masonry shall be thoroughly bonded by breaking joints in successive courses or by the use of metal ties

T-402.2.2.5 **Brick:** Brick shall be burned clay or shale, concrete or sand lime brick of Grade C or better.

T-402.2.2.6 **Stone:** Stone shall be limestone, marble, slate or equally fire resistive natural stone. Sandstone, granite or other stone which, because of its crystalline structure or for other reason, is less fire resistive, shall not be considered fire protection for structural metal, but may be used in a masonry wall not less than twelve (12) inches thick required to have fire resistance. Stone masonry shall have the same fire resistive rating as brick masonry.

T-402.2.2.7 **Cast stone:** Cast stone masonry shall have the same fire resistive rating as brick masonry.

T-402.2.2.8 **Concrete blocks:** Concrete blocks, whether solid or hollow, shall have as coarse aggregate limestone, trap rock, blast furnace slag, cinders containing not more than twenty (20) per cent of combustible material, burned clay or shale.

T-402.2.2.9 **Structural clay tile:** Structural clay tile shall conform to the specifications for load bearing tile, floor tile or partition tile. Where partition tile is specified, load bearing tile may be used.

T-402.2.2.10 **Gypsum:** Gypsum tile or pre-cast gypsum concrete, whether solid or hollow, shall conform to Standard Specifications for Gypsum Partition Tile or Block of the American Society for Testing Materials and shall not contain more than three (3) per cent by weight of wood or other combustible binder or filler.

T-402.2.2.11 **Gypsum concrete:** Gypsum concrete shall not contain more than twelve and one-half (12½) per cent by weight of wood or other combustible binder or filler, and shall have a compressive strength of at least five hundred (500) psi. It shall not be used where exposed to the elements.

T-402.2.2.12 **Lath:** Expanded metal or wire lath as a base or reinforcement for plastering shall weigh not less than two and two-tenths (2.2) pounds per square yard and shall have not less than two and one-half (2½) meshes per inch.

T-402.2.2.13 **Metal mesh for masonry:** Metal mesh reinforcement specified for masonry fire protection of structural metal shall consist of wire lath strips

## APPENDIX T

Table T-1 (cont'd)  
HAZARD INDEX AND USE GROUP CLASSIFICATION

Use of structure	Hazard index number	Use group
Trucking terminals	3	S 1
Turpentine manufacture	8	H
Warehouses	6, 3 or 1	H, S 1, or S-2 depending on nature of materials involved
Waterpumping stations	2	B
Wax products manufacture	8	H

## PART FOUR—ARCHAIC CONSTRUCTION SYSTEMS

## T-401.0 Purpose and scope

T-401.1 **Purpose:** The purpose of this part of Appendix T is to assist the building official and those regulated by this code in evaluating the properties of archaic construction systems.

T-401.2 **Scope:** This part of Appendix T contains data on construction systems no longer in general use but which may be encountered in older existing buildings. It is meant to be used for assessing existing conditions when evaluating how proposed changes will impact upon the performance of the building.

T-401.3 **Application:** In any given problem, all available data should be collected and professional judgment exercised in arriving at decisions. Evaluative judgment should be used when test data does not exist or when applying the data contained in this standard.

## T-402.0 Archaic fire resistive systems

T-402.1 **General:** This part of Appendix T contains a list of fire resistive materials and construction which are not necessarily currently in common use. Some of the hourly ratings contained in the listing predate ASTM E-119 that is in current use. The hourly ratings may be higher or lower if tested according to ASTM E-119. In addition to the data contained herein, see Report BMS92, Building Materials and Structures, dated October 7, 1942, National Bureau of Standards. The data listed below is extracted from the Boston Building Code, circa 1943.

## T-402.2 Fire resistive materials and construction

T-402.2.1 **Minimum qualities:** Materials, to be given the fire resistive ratings specified in this part, shall have the following minimum qualities set forth in Sections T-402.2.2 through T-402.2.19.

T-402.2.2 **Class 1 concrete:** Concrete of Class 1 shall be so proportioned as to have a strength of at least fifteen hundred (1500) pounds per square inch (psi) and the coarse aggregate shall consist of limestone, trap rock, blast

## APPENDIX T

## MASSACHUSETTS STATE BUILDING CODE

the full thickness of the masonry, laid in the beds thereof, or its approved equivalent.

**T-402.2.14 Metal mesh for concrete:** Metal mesh reinforcement specified for concrete fire protection of structural metal shall consist of wire mesh weighing not less than one and one half (1½) pounds per square yard with wire spaced not over four (4) inches, or not less than no 11 gage steel wire spaced not over four (4) inches apart, or its approved equivalent.

**T-402.2.15 Cement plaster:** Cement plaster shall be proportioned of one (1) part Portland cement, and not more than two (2) parts of sand measured by volume dry and loose to which may be added lime putty or hydrated lime not exceeding fifteen (15) per cent of the cement.

**T-402.2.16 Gypsum plaster:** Gypsum plaster, except where otherwise specified, may contain sand not in excess of three (3) times the weight of the gypsum.

**T-402.2.17 Lime plaster:** Lime plaster shall consist of a mixture of one (1) part lime, not over three (3) parts sand, and water.

**T-402.2.18 Pneumatically projected mortar:** Pneumatically projected mortar made of Portland cement, sand and water shall be rated for fire protection the same as Class 1 concrete.

**T-402.2.19 Concrete fill:** Concrete fill, where specified in this appendix in connection with hollow masonry units shall consist of Class 1 or Class 2 concrete poured in the hollow spaces of the units as they are laid.

**T-402.2.20 Reinforced concrete:** Portland cement concrete or gypsum concrete poured in place as fire protection for beams, trusses and other horizontal or inclined members of structural steel and pneumatically projected mortar applied to structural steel as fire protection shall be reinforced with metal mesh reinforcement. Concrete protection for vertical columns of structural metal shall have reinforcing consisting of no 5 wire spaced not over eight (8) inches apart or its equivalent. Reinforcement shall be wrapped around the structural member and so arranged as to be completely embedded in the fire protection material and to ensure its integrity.

**T-402.2.21 Reinforced plaster:** Plaster used as fire protection or to resist the spread of fire shall be reinforced with metal lath, except plaster less than one (1) inch thick or masonry or concrete.

**T-402.2.22 Replacement material:** In the protection of structural metal including reinforcement, one-half (½) inch of cement or gypsum plaster may replace an equal thickness of, poured concrete or pneumatically projected mortar as protective material; and one (1) inch of cement or gypsum plaster reinforced with metal lath may replace an equal thickness of poured concrete, pneumatically projected mortar or masonry protection.

**T-402.2.23 Plaster:** Where plaster is required without other specification, it shall consist of one-half (½) inch of cement or gypsum plaster, except that only Gypsum plaster shall be used on Gypsum masonry.

**T-402.2.24 Thickness:** In this appendix, except where otherwise specifically stated, the thickness given in a list of materials applies to the next following item only and not to the total thickness where additional materials are specified.

**T-402.2.25 Embedding limitations:** Pipes, wires, conduits and ducts shall not be embedded in or placed behind the fire-protective materials required for the protection of structural steel or iron except as otherwise provided in this paragraph. Above fire-protective huing ceilings and within the enclosed space in buildings of Type 1 and Type 2 construction, within which, other than the enclosure, fire protection of steel is not required, pipes, wires, conduits and ducts may be placed, provided they are so arranged, and so secured that they will not, either by expanding in the event of fire, or otherwise impair the effectiveness of the enclosing protective materials. Electric conduits and wires and gas pipes may be embedded in concrete or masonry fire protection of structural steel where the protective material is reinforced with wire mesh, provided they shall have protective covering except over the tops of beams and girders, at least as thick as required for the steel.

**T-402.2.26 Damage protection:** In factories, garages, warehouses and other buildings in which the fire protective covering required for steel or iron columns may be damaged by the movement of vehicles, materials or equipment, such covering shall be protected by metal or other material in a manner satisfactory to the building official.

**T-402.2.7 Firestopping:** Firestopping shall mean the stopping-off or enclosure at the ends and wherever else specified of the spaces between studs or partitions, joists of floors and roofs and other similar spaces to prevent drafts of air and the communication of fire from one such space to another. Firestopping shall consist of wood not less than one and one-half (1½) inches thick, of sheet metal not less than no. 24 gage or of masonry, or a combination of such materials. Firestopping shall be tightly fitted in the space to be filled, about pipes, wires and ducts and, if cut or disturbed in the placement of pipes, wires and ducts, shall be repaired.

**T-402.3 Fire protection of steel columns**

**T-402.3.1 Protective thickness:** Structural steel columns required to have fire protection of a given rating shall be covered on all sides with protective material having not less than the thickness necessary for the required rating. Except where "no fill" is specified, re-entrant and other accessible spaces behind the specified outer protection shall be filled with concrete or brick masonry or the material of the outer protection.

**T-402.3.2 Fire-resistance rating:** Materials shall be assumed to afford to steel columns fire protection of the rating indicated in the following Sections T-402.3.3 through T-402.3.6

**T-402.3.3 Four hour rating**

- 1 Two (2) inches Class 1 concrete
- 2 Three (3) inches Class 2 concrete, metal mesh reinforcement.
- 3 Three and one-half (3½) inches brick masonry.

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

- 4 Two (2) layers two (2) inch structural clay partition tile masonry, metal mesh in beds
- 5 Two (2) inches structural clay partition tile masonry, concrete fill, metal mesh in beds, three fourths (¾) inch gypsum plaster
- 6 Four (4) inches structural clay partition tile masonry, concrete fill, metal mesh in beds, five-eighths (⅝) inch lime plaster.
- 7 Four (4) inches structural clay partition tile or concrete block masonry, concrete fill, plaster.
- 8 Three (3) inches hollow gypsum tile masonry and plaster.
- 9 Two (2) inches gypsum concrete, metal mesh reinforcement.
- 10 Two (2) inches solid gypsum tile masonry and plaster.
- 11 Three (3) inches solid cinder concrete block masonry and plaster.
12. Four (4) inches hollow cinder concrete block masonry and plaster.
- T-402.3.4 Three hour rating**
- 1 One and three-fourths (1½) inches Class 1 concrete
  - 2 Two (2) inches Class 2 concrete, metal mesh reinforcement.
  - 3 Two (2) inches gypsum concrete
  - 4 Two (2) inches solid cinder concrete block masonry and plaster.
  - 5 Two (2) inches structural clay partition tile masonry, concrete fill.
- T-402.3.5 Two-hour rating**
- 1 One and one-half (1½) inches Class 1 concrete
  - 2 Two (2) inches Class 2 concrete, metal mesh reinforcement.
  - 3 One (1) inch Class 1 or Class 2 concrete encased in standard weight steel or wrought iron pipe.
  - 4 Two (2) inches structural clay partition tile masonry and plaster.
  - 5 Two (2) layers plaster, each on metal lath, with three-fourths (¾) inch air space between, two (2) inches total thickness
  - 6 Two (2) inches gypsum concrete.
  - 7 Two (2) inches solid or three (3) inches hollow gypsum tile masonry.
- T-402.3.6 One hour rating**
1. One (1) inch Class 1 concrete
  - One and one-half (1½) inches Class 2 concrete with metal mesh reinforcement.
  - Two and one-fourth (2¼) inches brick masonry.
  - Two (2) inches structural clay partition tile or concrete block masonry.
  - One (1) inch cement or gypsum plaster on metal lath.
- T-402.3.7 Thickness:** The thickness of protection on the outer edges of lugs or brackets need not exceed one (1) inch.
- T-402.4 Fire protection of cast iron columns**
- T-402.4.1 Protective thickness:** Cast iron columns required to have fire protection of a given rating shall be covered on all sides with protective materials having not less than the thickness necessary for the required rating. Reentrant spaces, if any, on the exterior of cast iron columns, and other accessible spaces behind the specified protection, shall be filled with Class 1 concrete or brick masonry or the material of the outer protection.
- T-402.4.2 Fire-resistance rating:** Materials shall be assumed to afford to cast iron columns fire protection of the rating indicated in the following Sections T-402.4.3 through T-402.4.5
- T-402.4.3 Four hour rating:** Cast iron columns shall not be used where the protection of a four hour rating is required
- T-402.4.4 Three-hour rating**
1. Two (2) inches Class 1 concrete
  - Two (3) inches Class 2 concrete, metal mesh reinforcement.
  - Two (2) inches structural clay partition tile or concrete block masonry concrete fill.
  - One and one-half (1½) inches cement or gypsum plaster on metal lath and metal lathing to form one-half (½) inch air space.
  - One and one half (1½) inches Class 1 concrete
  - Two (2) inches Class 2 concrete with metal mesh reinforcement.
- T-402.4.5 One-hour rating**
- 1 One (1) inch Class 1 concrete
  - One and one half (1½) inches Class 2 concrete with metal mesh reinforcement.
  - One (1) inch cement or gypsum plaster on metal lath.
- T-404.5 Fire protection of steel in reinforced concrete columns**
- T-404.5.1 Protective thickness:** The main steel reinforcement, including spiral reinforcement and ties larger than one-half (½) inch, in reinforced concrete columns required to have fire protection of a given rating shall be covered with concrete having not less than the thickness listed in this section for the rating indicated in the following Sections T-404.5.2 through T-404.5.6
- T-404.5.2 Four hour rating**
1. One and one-half (1½) inches Class 1 concrete.
  - Two (2) inches Class 2 concrete.
- T-404.5.3 Three-hour rating:** One and one-half (1½) inches Class 1 or Class 2 concrete.
- T-404.5.4 Two-hour rating**
- 1 One (1) inch Class 1 concrete
  - One and one-half (1½) inches Class 2 concrete.
- T-404.5.5 One hour rating:** One (1) inch Class 1 or Class 2 concrete.
- T-404.5.6 Ties less than one-half inch:** The thickness of protection on column ties not larger than one-half (½) inch may be one-half (½) inch thinner than that listed above
- T-404.6 Fire protection of steel beams, girders and trusses**
- T-404.6.1 Protective thickness:** Steel beams, girders and trusses or the members of trusses, required to have fire protection of a given rating, shall be covered on all sides with material having not less than the thickness necessary for the required rating

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

T-404 6.2 Fire-resistance ratings: Materials shall be assumed to afford steel beams, girders and trusses, or the members thereof, fire protection of the rating indicated in the following Sections T-404 6.3 through T-404 6.6

## T-404 6.3 Four-hour rating

- 1 Two (2) inches Class 1 concrete
- 2 Three (3) inches Class 2 concrete
- 3 Three (3) inches structural clay partition tile or concrete block masonry and plaster.
- 4 Three (3) inches hollow gypsum tile masonry and plaster.
- 5 Two (2) inches gypsum concrete.
- 6 Two (2) inches solid gypsum tile masonry and plaster.

## T-404 6.4 Three-hour rating

- 1 One and three-quarters (1½) inches Class 1 concrete
- 2 Two and one-half (2½) inches Class 2 concrete
- 3 Two (2) inches gypsum concrete
- 4 Two (2) inches structural clay partition tile, or concrete block masonry and plaster.
- 5 Two (2) inches solid, or three (3) inches hollow gypsum tile masonry

## T-404 6.5 Two-hour rating

- 1 One and one-half (1½) inches Class 1 concrete
- 2 Two (2) inches gypsum concrete

## T-404 6.6 One-hour rating

- 1 One (1) inch Class 1 concrete
- 2 One and one-half (1½) inches Class 2 concrete
- 3 Seven-eighths (¾) inch of cement or gypsum plaster on metal lath.

## T-404 7 Fire protection of steel in reinforced concrete beams

T-404 7.1 Protective thickness: The main steel reinforcement, including stirrups larger than one half (½) inch, in reinforced concrete beams, girders and trusses, including the ribs of reinforced concrete ribbed floors or roofs where one or both sides of the ribs, in addition to the soffit, are exposed to fire, required to have fire protection of a given rating, shall be covered on all sides with concrete having not less than the thickness listed in this section for the required rating. Where a reinforced concrete floor or roof has a flush ceiling formed with approved permanent masonry fillers between ribs, the reinforcement shall have the protection required for reinforcing steel of floors and roofs in Section T-404 8

## T-404 7.2 Four-hour rating

- 1 One and one-half (1½) inches Class 1 concrete
- 2 Two (2) inches Class 2 concrete

## T-404 7.3 Three-hour rating: One and one-half (1½) inches Class 1 or Class 2 concrete

## T-404 7.4 Two-hour rating

- 1 One (1) inch Class 1 concrete
- 2 One and one-half (1½) inches Class 2 concrete

## T-404 7.5 One-hour rating: One (1) inch Class 1 or Class 2 concrete

T-404 7.6 Stirrups less than one-half inch: The thickness of protection on stirrups not larger than one-half (½) inch may be less than that listed by not more than one-half (½) inch.

## T-404.8 Fire protection of steel reinforcing in floors and roofs

T-404 8.1 Protective thickness: The steel reinforcement in reinforced concrete floors and roofs with flush or plane ceilings, such that the exposure to fire is on the soffit only, required to have fire protection of a given rating, shall be covered with concrete having not less than the thickness listed in this section for the required rating in floors or roofs having reinforced concrete ribs where the concrete surrounding the steel reinforcement is exposed to fire on one or both sides in addition to the soffit, such reinforcement shall have the protection specified in Section T-404 7 for steel in reinforced concrete beams

## T-404 8.2 Four-hour rating

- 1 One (1) inch Class 1 concrete
- 2 One and one-fourth (1¼) inches Class 2 concrete

## T-404 8.3 Three-hour rating: One (1) inch Class 1 or Class 2 concrete

## T-404 8.4 Two-hour rating

- 1 Three-fourths (¾) inch Class 1 concrete
- 2 One (1) inch Class 2 concrete

## T-404 8.5 One-hour rating: Three-fourths (¾) inch Class 1 or Class 2 concrete

## T-404 9 Fire-resistive floor and roof construction

T-404 9.1 Protective thickness: Floors and roofs required to have resistance of a given rating to the spread of fire shall have such thickness of the materials of which it is constructed, as shall be necessary for the required rating, and structural metal forming a part of such floors or roofs shall have protection against fire of such required rating. Floors and roofs required to have two (2) hour or longer resistance to fire shall be constructed of noncombustible materials. Granolithic, burned clay tile, ceramic tile or other similar incombustible floor finish of a given thickness may be substituted for an equal thickness, and sand, cinder or other incombustible filling material, with or without embedded wooden screeds, may be substituted for two-thirds (⅔) its thickness, of the floor or roof construction material specified in this section, provided that such floors and roofs shall have adequate thickness for structural purposes

T-404 9.2 Fire-resistance rating: Floor or roof construction shall be assumed to afford resistance to the spread of fire of the rating indicated in the following sections T-404 9.3 through T-404 9.6

## T-404 9.3 Four-hour rating

- 1 Four (4) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete



## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

2. Four (4) inches solid masonry arches or slabs
3. Four (4) inches structural clay floor tile masonry arches or slabs with top covering of not less than two (2) inches of solid masonry or reinforced concrete
4. Five (5) inches combination reinforced Portland cement concrete slab consisting of permanent fillers of concrete, block, gypsum or structural clay tile and one and one-half (1½) inches of concrete topping; but if structural clay partition tiles are used for fillers they shall be plastered on the soffit.

## T-404.9.4 Three-hour rating

1. Three (3) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete.
2. Three (3) inches solid masonry arches or slabs
3. Four (4) inches structural clay floor tile masonry, arches or slabs with top covering of not less than one and one-half (1½) inches of solid masonry or reinforced concrete.
4. Four (4) inches combination reinforced Portland cement concrete slab consisting of permanent fillers of concrete block, gypsum or structural clay tile and one (1) inch concrete topping; but if structural clay partition tiles are used for fillers, they shall be plastered on the soffit.

## T-404.9.5 Two-hour rating

1. Two and one-half (2½) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete.
2. Two and one-half (2½) inches solid masonry arches or slabs.
3. Three (3) inches structural clay floor tile masonry, arches or slabs with top covering of not less than one (1) inch of solid masonry or reinforced concrete.

## T-404.9.6 One-hour rating

1. Three (3) inches structural clay floor tile masonry, arches or slabs with all joints thoroughly filled with cement or gypsum mortar.
2. Wood floor or roof construction with joists not less than one and five-eighths (1½) inches in least dimension, firestopped, double board floor, approved asbestos felt between layers of boards, and with a ceiling of at least three-quarters (¾) inch cement or gypsum plaster on metal lath.
3. Steel beams or steel joists not more than thirty six (36) inches apart on centers with noncombustible floor and a ceiling of at least three-quarters (¾) inch cement or gypsum plaster on metal lath furring.

## T-404.10 Fireresistive ceiling construction

T-404.10.1 Protective thickness: Ceilings required to afford fire protection of a given rating to the floor or roof framing under which it is supported shall be of fireresistive materials of at least the thickness necessary for the given rating. A fireresistive ceiling and all hangers and fastenings necessary for its support to the protected framing shall be of noncombustible materials. It shall be capable of sustaining its own weight without exceeding allowable stresses. Metal reinforcement in such a ceiling shall be protected from fire as specified in Section T-404.8 for reinforcing in a floor.

T-404.10.2 Fireresistance ratings: Ceiling construction shall be assumed to afford to floor or roof framing fire protection of the rating indicated in the following Sections T-404.10.3 through T-404.10.6

## T-404.10.3 Four-hour rating

1. Two and one half (2½) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete
2. Two (2) inches precast reinforced gypsum concrete, plastered.

## T-404.10.4 Three hour rating

1. Two (2) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete.
2. Two (2) inches precast reinforced gypsum concrete, lapped or rabbeted joints

T-404.10.5 Two-hour rating: One and one-half (1½) inches solid slab of reinforced Portland cement concrete or reinforced precast gypsum concrete

T-404.10.6 One hour rating: Three quarter (¾) inch cement or gypsum plaster on metal lath.

## T-404.11 Fireresistive bearing walls and partitions

T-404.11.1 Protective thickness: Bearing walls and partitions required to have resistance to fire of a given rating shall be constructed of fireresistive materials and shall have at least the thickness necessary for the required rating. Walls required to have two (2) hour or longer rating shall be of noncombustible materials. Steel reinforcement in reinforced concrete walls shall have the same protection for the given rating as is required in Section T-404.9 for floors.

T-404.11.2 Fireresistance ratings: Bearing walls and partitions shall be assumed to have resistance to fire and the spread of fire of the rating indicated in the following Sections T-404.11.3 through T-404.11.9

## T-404.11.3 Four hour rating

1. Eight (8) inches solid brick masonry.
2. Twelve (12) inches hollow wall of brick masonry, minimum eight (8) inch masonry thickness.
3. Twelve (12) inches structural clay load bearing tile masonry with two (2) units and not less than three (3) cells in the thickness of the wall.
4. Eight (8) inches structural clay load bearing tile masonry with one (1) unit and not less than two (2) cells in the thickness of the wall, plastered both sides.
5. Twelve (12) inches concrete block masonry with one (1) unit and not less than two (2) cells in the thickness of the wall.
6. Eight (8) inches one (1) piece concrete block masonry with shells and webs at least one and one-half (1½) inches thick, plastered both sides.
7. Twelve (12) inches total thickness of brick masonry facing bonded to structural clay load bearing tile masonry backing.
8. Eight (8) inches solid concrete
9. Six (6) inches solid reinforced concrete.

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

10 A steel or reinforced concrete frame bearing wall in which the steel has fire protection of four (4) hour rating, with panel filling as specified in Section T-404.12 for a non-bearing wall of four (4) hour rating.

## T-404.11.4 Three-hour rating

- 1 Eight (8) inches structural clay load bearing tile masonry with two (2) units and not less than four (4) cells in the thickness of the wall.
- 2 Twelve (12) inches structural clay load bearing tile masonry with one (1) unit and not less than three (3) cells in the thickness of the wall.
- 3 Eight (8) inches one (1) piece concrete block masonry with shells and webs not less than one and one-half (1½) inches thick, plastered both sides.
- 4 Eight (8) inches one (1) piece concrete block masonry with shells and webs not less than two (2) inches thick.
- 5 Five (5) inches solid reinforced concrete.
- 6 A steel or reinforced concrete frame bearing wall in which the steel has fire protection of three (3) hour rating, with panel filling as specified in Section T-404.12 for a non-bearing wall of three (3) hour rating.

## T-404.11.5 Two-hour rating

- 1 Eight (8) inches structural clay load bearing tile masonry with not less than three (3) cells in the thickness of the wall.
- 2 Eight (8) inches concrete block masonry with shells and webs not less than one and one-half (1½) inches thick.
- 3 A steel or reinforced concrete frame bearing wall in which the steel has fire protection of two (2) hour rating, with panel filling as specified in Section T-404.12 for a non-bearing wall of two (2) hour rating.

## T-404.11.6 One hour rating

- 1 A steel or wooden stud bearing wall covered on both sides with one (1) inch cement or gypsum plaster on metal lath, firestopped if of wood.
- 2 A steel or reinforced concrete frame bearing wall in which the steel has fire protection of one (1) hour rating, with panel filling as specified in Section T-404.12 for a non-bearing wall of one (1) hour rating.

## T-404.12 Fireresistive non-bearing walls and partitions

T-404.12.1 Protective thickness. Non-bearing walls and partitions required to have resistance to fire and the spread of fire of a given rating shall be constructed of fireresistive materials and shall have at least the thickness necessary for the required rating. Walls required to have two (2) hour or longer rating shall be of incombustible materials. Steel reinforcement in reinforced concrete walls shall have the same protection for the given rating as is required in Section T-404.8 for steel in floors.

T-404.12.2 Fireresistance rating. Non-bearing walls and partitions shall be assumed to have resistance to fire and the spread of fire of the rating indicated in the following Sections T-404.12.3 through T-404.12.6.

## T-404.12.3 Four-hour rating

- 1 Eight (8) inches solid brick masonry.

- 2 Three and one half (3½) inches solid brick masonry, plastered both sides.
- 3 Six (6) inches structural clay load bearing tile, plastered both sides.
- 4 Six (6) inches solid concrete.
- 5 Four (4) inches solid reinforced concrete.
- 6 Any wall which, as a bearing wall, has a three (3) hour or four (4) hour rating in Section T-404.11, except the steel or reinforced concrete frame bearing wall.

## T-404.12.4 Three-hour rating

- 1 Three and one half (3½) inches solid brick masonry.
- 2 Four (4) inches structural clay load-bearing tile, plastered both sides.
- 3 Four (4) inches solid concrete.
- 4 Three (3) inches reinforced concrete.
- 5 Any wall which, as a bearing wall, has a two (2) hour rating in Section T-404.11 except the steel or reinforced concrete frame bearing wall.

## T-404.12.5 Two-hour rating

- 1 Three (3) inches gypsum tile masonry plastered both sides except in exterior walls.
- 2 Eight (8) inches structural clay partition tile masonry, plastered both sides.
- 3 Eight (8) inches structural clay load bearing tile, with three (3) cells in the thickness of the wall.
- 4 Four (4) inches concrete block plastered both sides.
- 5 Two (2) inches solid neat, fibered, gypsum plaster on metal lath and noncombustible studding.

## T-404.12.6 One hour rating

- 1 Three (3) inches gypsum tile masonry.
- 2 Two (2) inches solid gypsum tile masonry plastered both sides.
- 3 Three (3) inches structural clay partition tile plastered both sides.
- 4 Two and one-half (2½) inches solid cement or sanded gypsum plaster on metal lath and noncombustible studding.
- 5 Three (3) inches total thickness of hollow wall, three-quarter (¾) inch cement or gypsum plaster on metal lath and noncombustible studding.
- 6 Three (3) inches total thickness of hollow wall, three-quarter (¾) inch cement or gypsum plaster on metal lath and wooden studding, firestopped.

## T-404.13 Fireresistive doors

T-404.13.1 General. Doors which are required to be fire doors, fireresistive doors, or of fireresistive construction shall conform to the requirements of this section and Section T-404.14.

T-404.13.2 Classification. Fire doors shall be classified for the purposes of this code as Class A, Class B, and Class C.

T-404.13.3 Class A fire doors. Class A fire doors shall be doors of the following construction and as specified in Section T-404.14.

- 1 Tin-clad, three (3) ply wood core, sliding.

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

2. Tin-clad, three (3) ply wood core, swinging single leaf, doorway not over six (6) feet wide.
3. Tin-clad, three (3) ply wood core, swinging in pairs, doorway not over ten (10) feet wide.
4. Hollow metal, swinging single leaf, doorway not over four (4) feet wide.
5. Hollow metal, swinging in pairs, doorway not over eight (8) feet wide.
6. Sheet metal, sliding, single, doorway not over ten (10) feet wide.
7. Sheet metal, sliding in pairs, doorway not over twelve (12) feet wide.
8. Sheet metal, swinging single leaf, doorway not over six (6) feet wide.
9. Sheet metal, swinging in pairs, doorway not over ten (10) feet wide.
10. Steel rolling doorway not over twelve (12) feet wide.
11. Steel plate, doorway not over four (4) feet wide.
12. Any other construction equal or superior to a tin-clad three (3) ply wood core door in a standard fire test, for resistance to fire, the spread of fire and smoke, and transmission of heat.

T-404.13.4 Class B fire doors: Class B fire doors shall be doors of the following construction and as specified in Section T-404.14

1. Tin-clad, three (3) ply wood core
2. Tin-clad, two (2) ply wood core, sliding, doorway not over ten (10) feet wide
3. Tin-clad, two (2) ply wood core, swinging single leaf, doorway not over six (6) feet wide.
4. Tin-clad, two (2) ply wood core, swinging in pairs, doorway not over ten (10) feet wide.
5. Hollow metal, sliding, doorway not over eight (8) feet wide
6. Metal-clad, paneled, swinging single leaf, doorway not over three (3) feet wide.
7. Metal-clad, paneled, swinging in pairs, doorway not over six (6) feet wide.
8. Any other construction equal or superior to a tin-clad two (2) ply wood core door in a standard fire test, for resistance to fire, the spread of fire and smoke, and transmission of heat.

T-404.13.5 Class C fire doors: Class C fire doors shall be doors of the following construction and as specified in Section T-404.14

1. Metal-clad, paneled, swinging single leaf, doorway not over four (4) feet wide.
2. Metal-clad, paneled, swinging in pairs, doorway not over eight (8) feet wide

T-404.13.6 Substitution: A Class A door may be used where Class B or Class C is specified; a Class B door may be used where Class C is specified. Two (2) Class B or Class C doors on opposite sides of the wall may be used where a single Class A or Class B door is specified.

T-404.13.7 Overlap: Fire-resistant doors, when closed, shall completely cover the doorways in the walls and partitions or the openings in the floors or roofs to which they are fitted. A swinging fire door shall either overlap both jambs and the head of the opening not less than four (4) inches or be fitted to a

fire-resistant frame with a rabbet the full thickness of the door and with not less than one half (1/2) inch overlap on the door. A sliding fire door, except in enclosures about passenger elevators, shall overlap both jambs and the head of the opening not less than four (4) inches. A sliding fire door in an enclosure about a passenger elevator shall overlap jambs, head and adjoining panels not less than one half (1/2) inch. Fire doors shall fit closely at the floor with clearance of not over one quarter (1/4) inch.

T-404.13.8 Thresholds: In buildings with combustible floors, doorways required to have fire doors shall have noncombustible thresholds the full thickness of the wall, extending at least four (4) inches from the face of the wall where a door is hung and extending laterally at least six (6) inches behind each jamb of the doorway. Thresholds may be flush with the floor.

T-404.13.9 Rabbetted frames: The rabbetted frame of a swinging fire door shall be constructed of structural steel built into the concrete, masonry or other fire-resistant material of the wall about the opening and secured thereto, except that the rabbetted frame of a Class B or Class C door may be of wood, covered with sheet metal not less than no. 26 gage in thickness, secured to the wall in the opening.

T-404.13.10 Fits: Fire doors when closed shall fit tightly against the wall or frame so as to provide an effective stop for fire and smoke. Except for the metal-covered wooden frame specified in this section, combustible material shall not intervene between the door and the fire-resistant material of the wall, floor or roof to which it is fitted.

T-404.13.11 Hardware: Hinge hardware for fire doors shall be of malleable iron or rolled structural steel not less than one quarter (1/4) inch thick except that tubular steel track for sliding doors may be not less than one eighth (1/8) inch thick. Equivalent thickness of solid bronze or brass may be used. Fire doors shall not depend upon cords, cables or chains to support them in closed position except in elevator shafts.

T-404.13.12 Tracks: Tracks for sliding fire doors shall be so supported that a track hanger comes at each door hanger when the door is closed. Track hangers shall be secured to wood stud walls by screws or bolts, to steel stud walls by bolts or rivets, to masonry walls by through bolts and to concrete walls by through bolts or approved built-in inserts. Expansion shields shall not be used to support fire doors.

T-404.13.13 Hinges: Hinges for swinging fire doors, except in wooden stud walls, shall be riveted or through bolted to the structural steel frame of the opening, through bolted to the wall if of masonry or concrete or secured by approved inserts in the concrete or built into masonry in an approved manner.

T-404.13.14 Strap hinges: Strap hinges and sliding door hangers shall be secured to fire doors by through-bolting, riveting or welding. Swinging fire doors in rabbetted frames, except tin-clad, wood core doors, may be hung on butts. Other swinging fire doors shall have strap hinges.

T-404.13.15 Straps, locks and latches: Sliding fire doors shall have adequate stops for the closed position. Swinging Class A fire doors shall have surface

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX T

latches or unit locks. Class B and Class C doors shall have surface latches, unit or mortise locks. The latch bolts of unit or mortise locks on fire doors shall have a throw of three quarters ( $\frac{3}{4}$ ) inch. When mounted in pairs, fire doors shall be rabbeted by means of an astragal or otherwise where they meet together. One of a pair of swinging fire doors shall have push bolts at top and bottom with a throw of three quarters ( $\frac{3}{4}$ ) inch and the other shall be held by latch to the first.

**T-404.13.16 Opening hardware:** Except in detention buildings fire doors hung in required exits shall be so fitted with hardware that they can be opened from inside without use of a key when the building is occupied.

**T-404.14 Fire door construction**

**T-404.14.1 Fastenings:** In the construction of fire doors, solder shall not be used except for filling joints. Sheet metal shall be fastened to wood by nailing and to metal frame by bolting, riveting or welding.

**T-404.14.2 Glass:** Class A doors shall not have glass panels. Class B doors may have glass panels not larger than one hundred (100) square inches in exposed area nor more than twelve (12) inches in width or height. Class C doors may have glass panels not larger than two thousand and sixteen (2,016) square inches in total exposed area, and any single light shall not have an exposed area exceeding twelve hundred and ninety six (1,296) square inches. Glass in fire doors shall be wire glass not less than one quarter ( $\frac{1}{4}$ ) inch thick and shall be set five eighths ( $\frac{5}{8}$ ) inch in grooves three quarters ( $\frac{3}{4}$ ) of an inch deep.

**T-404.14.4 Tin-clad, two-ply:** Tin clad, two-ply wood core doors shall be constructed in accordance with the specifications of the National Board of Fire Underwriters for such doors in Class B openings and shall bear the label of the Underwriters Laboratories to this effect.

**T-404.14.4 Tin-clad, two-ply:** Tin-clad, two-ply wood core doors shall be constructed in accordance with the specifications of the National Board of Fire Underwriters for such doors in Class B openings and shall bear the label of the Underwriters Laboratories to this effect.

**T-404.14.5 Hollow metals:** Hollow metal doors shall have substantial stiles and rails of heavy pressed steel, reinforced for hinges and other hardware. Panels shall be of sheet steel filled with asbestos board or other approved insulating materials. The door shall be assembled by welding or riveting.

**T-404.14.6 Sheet metals:** Sheet metal doors shall be constructed with a rolled steel rigid frame covered both sides with one sixteenth (1/16) inch asbestos board and no 26 gage corrugated sheet metal, with corrugations vertical on one side and horizontal on the other, bound on the edges with rolled steel or pressed steel shapes.

**T-404.14.7 Steel rolling:** A steel rolling fire door shall be constructed of sheet steel interlocking slats, sliding in grooves, counterweighted by springs, with the roller and mechanism enclosed in heavy sheet metal.

**T-404.14.8 Steel plate:** A steel plate fire door shall be constructed of not

less than no. 12 gage steel plate mounted on a rolled steel frame, assembled by welding or riveting.

**T-404.14.9 Metal clads:** A metal clad, paneled fire door shall have a wood core with stiles and rails not less than one and three quarters ( $1\frac{3}{4}$ ) inches thick covered with no. 26 gage sheet steel; panels three quarters ( $\frac{3}{4}$ ) inch thick covered with no. 26 gage sheet steel, set three quarters ( $\frac{3}{4}$ ) inch in grooves; joints of metal lapped and well nailed.

**T-404.14.10 Class A label:** A door properly bearing the Underwriters' label certifying that it is suitable for the protection of a Class A opening shall be acceptable as a Class A door.

**T-404.14.11 Class B label:** A door properly bearing the Underwriters' label certifying that it is suitable for the protection of a Class B opening shall be acceptable as a Class B door, except that metal clad doors wider than three (3) feet shall not be accepted as Class B doors.

**T-404.14.12 Class C label:** A door properly bearing the Underwriters' label certifying that it is suitable for the protection of a Class C opening shall be acceptable as a Class C door.

**T-404.15 Fireresistive shutters:** Shutters required to be fire shutters or fire-resistive doors in Sections T-404.13 and T-404.14

**T-404.16 Fireresistive windows**

**T-404.16.1 General:** Windows which are required to be fire windows fire-resistive windows, or of fireresistive construction shall conform to the requirements of this section.

**T-404.16.2 Movable:** Fireresistive windows may be fixed or arranged to open and close. Fixed fireresistive windows shall be so secured in the walls in which they are placed that they may expand in case of fire without buckling. Movable fireresistive windows shall be opened or closed in one of the following manners:

- 1 One (1) or more sashes may slide horizontally in a fireresistive frame.
- 2 One (1) or more sashes may slide vertically with counterweights or with two (2) sashes counterbalanced and hung on chains. If a sash is closed in raised position it shall have a fastening.
- 3 A sash may be hinged at top, bottom, or either side.
- 4 A sash may be pivoted at top and bottom or at the sides.
- 5 A sash may be arranged to open and close in any other approved manner, with approved hardware.

**T-404.16.3 Sash:** Movable sashes in fireresistive windows shall be fitted to fireresistive frames of the same or similar construction. Both sashes and frames, and metal mullions between window units, shall be so fitted in the walls in which they are placed as to be continuous with the fireresistive material of the wall and so secured that they may expand in case of fire without buckling.

**T-404.16.4 Glass:** Glass in fireresistive windows shall be wired glass not less than one quarter ( $\frac{1}{4}$ ) inch thick and the area of a single light shall not exceed

## MASSACHUSETTS STATE BUILDING CODE

## APPENDIX 7

seven hundred and twenty (720) square inches. Glass shall be set three eighths ( $\frac{3}{8}$ ) inch in grooves at least one half ( $\frac{1}{2}$ ) inch deep. Glass shall be secured by glazing angles or moldings screwed to the sash and forming continuous grooves for the glass.

T-404.16.5 Construction: Fire-resistant windows shall be of the following construction:

- 1 Hollow sheet metal sashes and frames fabricated by pressing, welding, riveting or crimping without the use of solder or other fusible alloy, except for filling joints, and bearing the label of Underwriters' Laboratories
- 2 Rolled steel or pressed steel sashes fabricated by pressing, welding, riveting or crimping, of a make and style approved by the commissioner
- 3 Any other approved constructions as fire-resistant as that specified in item 1 above

T-404.16.6 Hollow sheet metal: Fired fire-resistant windows of hollow sheet metal construction shall not exceed seven (7) feet in width nor ten (10) feet in height. Fire-resistant windows of hollow sheet metal construction with movable sashes shall not exceed six (6) feet in width nor ten (10) feet in height.

T-404.16.7 Rolled steel: Fire-resistant windows of rolled steel construction shall not exceed eighty four (84) square feet in area nor twelve (12) feet in either height or width.

T-404.16.8 Wind pressure: Fire-resistant windows and their fastenings shall be capable of resisting the wind pressure on the wall of the building applied either on the inside or the outside of the window without exceeding allowable stresses.

T-404.16.9 Substitution: Where fire-resistant windows are required, wooden windows and plain glass may be substituted provided the openings are protected by fire-resistant doors or shutters, or, in buildings of approved occupancy and construction, by an approved system of open sprinklers.

## T-404.17 Fire-resistant roof covering

T-404.17.1 Classification: Roof covering allowed under this code shall be classified as fire-retardant or ordinary, according to resistance to fire outside, as provided in this section. Fire-retardant roof covering is the more fire-resistant and may be used on any building. Ordinary roof covering shall not be used where fire retardant roofing is specified. Roof covering less fire-resistant than ordinary roof covering shall not be used on any building.

T-404.17.2 Fire retardant roofing: Fire-retardant roofing shall be any roof covering meets the requirements of Class A or Class B roofing under the specifications of the Underwriters' Laboratories, Inc. The following roof covering shall be assumed to meet the requirements for fire retardant roofing:

- 1 Built up roofing consisting of successive layers of roofing felt impregnated with asphalt; a final layer of asphalt in which, while molten, is embedded a continuous layer of roofing gravel or slag.
- 2 Built up roofing consisting of successive layers of roofing felt im-

pregnated with coal tar; a final layer of tar in which, while molten, is embedded a continuous layer of roofing gravel or slag.

- 3 Built up roofing consisting of successive layers of roofing felt impregnated with asphalt; a final layer of asbestos roofing felt impregnated with asphalt weighing not less than fourteen (14) pounds per hundred square feet, or a final layer of asphalt saturated prepared roofing coated with granulated slate or other similar material.
- 4 Built up roofing consisting of successive layers of roofing felt impregnated with tar or asphalt and a finish of burned clay floor tile, stone flagging, cement concrete or other similar material.
- 5 Sheet metal with locked and soldered joints not less than no 26 gage in thickness.
- 6 Shingles of natural slate.
- 7 Shingles of burned clay tile.
- 8 Shingles of sheet metal not less than no 26 gage in thickness.
- 9 Shingles of asbestos board not less than one-eighth ( $\frac{1}{8}$ ) inch thick.
- 10 Shingles of asphalt saturated felt surfaced with granulated slate or other similar material and carrying the Underwriters' Class "C" label.
- 11 Corrugated sheet metal with lapped joints not less than no 26 gage in thickness.
- 12 Corrugated asbestos board not less than three sixteenths ( $\frac{3}{16}$ ) inch thick.

T-404.17.3 Ordinary roofing: Ordinary roofing shall be any roof covering which meets the requirements of Class C roofing under the specifications of the Underwriters' Laboratories, Inc. The following roof covering shall be assumed to meet the requirements for ordinary roofing:

- 1 Built up roofing consisting of successive layers of roofing felt impregnated with asphalt, coal tar or other approved material, not equal in fire-resistance to a fire-retardant roofing.
- 2 Prepared roofing consisting of felt or fabric impregnated or coated, or both, with asphalt, tar or other approved material or shingles of such prepared roofing, not equal in fire-resistance to fire-retardant roofing.
- 3 Canvas stretched tightly and coated with paint.

T-404.17.4 Means of securing: Built up roofing shall be secured to the roof deck in the following manner:

- 1 Over masonry slabs, the first layer shall be laid in molten asphalt or tar mopped on the roof deck, after the deck is properly primed, or by nailing a layer of building paper to nailing strips other than wood placed in the deck.
- 2 Over wood decks, the built up roofing shall be secured by nailing a layer of building paper to the roof deck over which the prepared roofing is to be laid with the first layer laid in molten asphalt or tar.
- 3 Roofings other than built-up roofings, such as shingles, slates, and tile roll roofing shall be well secured to the deck by nailing, bolting, wiring, or other approved methods.

## APPENDIX 9

City of Los Angeles Rule of General  
Application on Structural Changes  
Required by Change of Occupancy

SUBJECT: STRUCTURAL CHANGES REQUIRED BY CHANGE OF OCCUPANCY  
OR INCREASE IN OCCUPANT LOAD

Changes of Occupancy

Section 91.0315(b) requires a building be made to conform in all respects whenever the occupancy is changed to a different subgroup.

Section 91.0315(b) allows the Superintendent to issue a new certificate without requiring complete compliance if he finds that the change in occupancy will result in no increased hazards to life, limb, health, property, or public welfare. Under this authority, changes of occupancy may be made without establishing that a building complies with current structural requirements of the Building Code under any of the following conditions:

- 1 In buildings constructed on or after October 6, 1922, a change in occupancy may be made to establish any occupancy classification provided the building is not substantially altered.
- 2 In buildings constructed prior to October 6, 1933, a change may be made from one occupancy to another of a lesser hazard as listed in the following table and, except for the assembly buildings, hospitals and schools, a change may be made to another occupancy within the same hazard groups. A change to a higher hazard occupancy, or assembly buildings, hospitals

and schools occupancy, shall not be made in buildings constructed prior to October 6, 1933, except for Type I (or Class A) buildings as provided for in Item 3.

- 1 Private garages, carports (least hazardous)
- 2 One and two family dwellings.
- 3 Gas stations and parking garages,
- 4 Businesses, factories, restaurants (less than 50 occupants) and hazardous materials occupancies
- 5 Hotels and apartments
- 6 Assembly buildings, hospitals and schools (most hazardous).

- 3 In Type I (or Class A) buildings constructed prior to October 6, 1933, a change to a higher hazard classification (as listed in Item 2) or to an assembly, hospital or school occupancy will be individually considered taking into account the general structural requirements in effect at the time the building was constructed, the structural system used in the building, the condition classification, the occupant load and other pertinent conditions. For the purpose of this Rule, the Occupancy classification of interconnected assembly rooms shall be based upon the total of all occupants in such rooms. The provisions of this Rule shall not be presumed to waive the requirements of Section 91.0315(a) which provides that any assembly, hospital or school occupancy, housed in buildings constructed prior to 1934, which have been discontinued for a period of more than six months, must comply with all code requirements prior to being reoccupied.

Increases in Occupancy Load (Without a Change of Occupancy)

Increases in occupant load, within existing floor space, that do not cause a change in occupancy may be made to any occupancy in any building without

verifying that the building complies with current structural requirements of the Building Code except where Section 91.0315(b) applies. Section 91.0315(b) prohibits an increase in occupant load in assembly occupancies located in buildings constructed prior to 1934 unless the entire building conforms to the current structural design provisions of the Building Code.

This Rule supersedes RGA 657 adopted by the Superintendent of Building and effective on December 29, 1963.

The foregoing Rule of General Application shall become effective upon publication.

0351 A-P356/0005A

February 6, 1979, Rev. 1

NOTE: Appendix 9 has been editorially revised to refer to occupancies by definition rather than to utilize occupancy letter designations used in the Los Angeles Building Code.

## APPENDIX 10

State of California Seismic Safety Commission  
Draft Legislation Relating to Seismic Hazards

## DRAFT LEGISLATION RELATED TO HAZARDOUS

## BUILDINGS FOR SUBMISSION IN THE

## 1979-80 REGULAR SESSION

## LEGISLATIVE COUNSEL'S DIGEST

(1) Existing law authorizes a city, city and county, or county to establish construction standards for any building, except specified unoccupied buildings, rural one and two family dwellings, farm buildings, buildings under construction on and prior to May 26, 1933, and other described rural buildings, constructed in this state to meet lateral forces acting upon the building, as specified in regulations adopted by the Department of Housing and Community Development, and authorizes a city, city and county, or county to adopt construction standards more strict than such specified standards for earthquake protection. Such provisions apply when buildings are constructed or altered after adoption of the standards.

This bill would authorize a city, city and county, or county to establish construction standards for reconstruction of existing buildings determined, as specified, to be a hazard to life in the event of an earthquake, which standards are as specified in the bill and would eliminate the problem of complying

with the latest building code governing new construction when rehabilitating older buildings. The bills would authorize the city, city and county, or county to adopt higher standards than as provided in the bill. However, the bill would prohibit a building from being declared a seismic hazard to life after reconstruction pursuant to a later adopted ordinance unless the building no longer meets the seismic hazard standards under which it was reconstructed.

The bill would also require the Seismic Safety Commission to recommend changes to such provisions of the bill by June 30, 1985.

(2) This bill would provide that there is no appropriation made for the reimbursement to local agencies for costs incurred by them by this bill pursuant to Section 2231 of the Revenue and Taxation Code for a specified reason.



SEC. 1. Article \_\_\_\_\_ (commencing with Section \_\_\_\_\_) is added to Chapter \_\_\_\_\_ of Part \_\_\_\_\_ of Division \_\_\_\_\_ of the Health and Safety Code, to read:

Article \_\_\_\_\_ . Earthquake Hazardous

Building Reconstruction

\_\_\_\_\_ . The Legislature finds and declares that:

(a) Because of the generally acknowledged fact that California will experience moderate to great earthquakes in the foreseeable future, increased efforts to reduce earthquake hazards should be encouraged and supported.

(b) Tens of thousands of buildings subject to severe earthquake hazards continue to be a serious danger to the life and safety of hundreds of thousands of Californians who live and work in them in the event of an earthquake.

(c) Improvement of safety to life is the primary goal of building reconstruction to reduce earthquake hazards.

(d) A building may be hazardous to life in the event of an earthquake, if the building was constructed prior to the adoption and enforcement of local building codes requiring earthquake resistant design of buildings; is constructed of unreinforced bearing wall masonry construction on the effective date of this Article, and exhibits any one of the following characteristics:

- (1) exterior parapets or ornamentation that may fall on a public way,
  - (2) exterior walls that are not anchored to the floors or roof,
  - (3) lacks an effective system to resist seismic forces.
- (e) In order to make building reconstruction economically feasible

and to provide improvement of the safety or life in seismically hazardous buildings,

standards enacted by local government for building reconstruction will differ from standards which govern new building construction

\_\_\_\_\_ . Each city, city and county, or county may assess the earthquake hazard in its jurisdiction and establish by ordinance, it is deemed appropriate, seismically hazardous building reconstruction standards commensurate with the magnitude of the local earthquake hazard.

\_\_\_\_\_ . Notwithstanding the provisions of Sections 19100 or 19150 of the Health and Safety Code or any other provision of law, excepting those structures or buildings which are needed for emergency purposes after an earthquake in order to preserve the peace, health and safety of the general public, such as hospitals and other medical facilities having surgery or emergency treatment areas, fire and police stations; municipal government disaster operation centers and public utility and communication buildings deemed vital in emergencies, the governing body of any city, city and county, or county may, by ordinance, establish standards for reconstruction of buildings identified by the city, city and county, or county as being hazardous to life in the event of an earthquake. Such seismic building reconstruction standards may be applied uniformly throughout the city, city and county, or county or may be applied in specific areas designated by the city, city and county, or county. The identification of any building as being potentially hazardous to life in the event of an earthquake shall be made by a licensed or certified architect or registered civil or structural engineer as defined by Chapter 3 or Chapter 7 of the Business and Professions Code.

\_\_\_\_\_ . Any local ordinance adopted pursuant to Section \_\_\_\_\_ shall require that:

- (a) The reconstruction of any building identified as being hazardous

to life in the event of an earthquake shall provide for the reasonable adequacy of:

- (1) Unreinforced masonry walls to resist normal and inplane seismic forces,
  - (2) The anchorage and stability of exterior parapets and ornamentation,
  - (3) The anchorage of unreinforced masonry walls to the floors and roof,
  - (4) Floor and roof diaphragms,
  - (5) The development of a complete bracing system to resist earthquake forces.
- (b) Any building or portions of any building reconstructed pursuant to the ordinance shall resist and withstand seismic forces from any direction of a magnitude not less than the seismic forces set forth in the local ordinance. The magnitude of the seismic forces and allowable working stresses shall be established after review and consideration of model ordinances prepared by the Seismic Safety Commission.

(c) Any city, city and county, or county may assign allowable working stresses to existing materials based on substantiating research data. In the event the local jurisdiction does not have the ability to assign such allowable working stresses, it can use those prepared by \_\_\_\_\_ by the Office of State Architect, subject to approval by the Seismic Safety Commission.

\_\_\_\_\_. Any city or county adopting an ordinance establishing standards for reconstruction of buildings identified as being hazardous to life,

in the event of an earthquake shall file with the Seismic Safety Commission a copy of the ordinance and all subsequent amendments.

\_\_\_\_\_. Any building identified as being a seismic hazard to life and reconstructed in compliance with a local ordinance adopted pursuant to this article may not within a period of fifteen years be identified as a seismic hazard to life pursuant to any local ordinance adopted after the date of the building reconstruction unless such building no longer meets the seismic hazard standards under which it was reconstructed.

\_\_\_\_\_. The Seismic Safety Commission shall review and assess the effectiveness of State regulations and local government ordinances adopted pursuant to this article and shall recommend any necessary changes to the Legislature by June 30, 1985, or earlier at its discretion.

SEC. 2. Notwithstanding Section 2231 of the Revenue and Taxation Code, there shall be no reimbursement pursuant to that section nor shall there be an appropriation made by this act because the duties, obligations, or responsibilities imposed on local government by this act are such that related costs are incurred as part of their normal operating procedures.

## APPENDIX 11

Chapter 10, Official Electrical Code of  
the City of Detroit

## CHAPTER 10 OF THE CODE IS ADDED AS FOLLOWS:

## 1000-1. MINIMUM STANDARDS FOR EXISTING DWELLING UNITS.

IF INSPECTION REVEALS THAT THE WIRING SYSTEM OF AN EXISTING DWELLING TYPE OCCUPANCY IS INADEQUATE, OR IF CODE CERTIFICATION AS A HABITABLE DWELLING UNDER THIS SECTION IS REQUESTED, THE FOLLOWING MINIMUM REQUIREMENTS SHALL BE COMPLIED WITH:

(a) **ENTRANCES AND EXITS:** WHERE TWO (2) OR MORE ENTRANCES AND/OR EXITS EXIST, AT LEAST TWO (2) ENTRANCES AND/OR EXITS SHALL BE ILLUMINATED BY EXTERIOR LIGHTS. LIGHTING OUTLETS SHALL BE CONTROLLED BY INTERIOR WALL SWITCHES, LOCATED FOR CONVENIENT AND READILY ACCESSIBLE USE.

(b) **LIVING ROOM:** LIVING ROOM SHALL BE PROVIDED WITH ILLUMINATION. LIGHTING OUTLET SHALL BE CONTROLLED BY A WALL SWITCH, LOCATED FOR CONVENIENT AND READILY ACCESSIBLE USE. ONE OF THE RECEPTACLE OUTLETS CONTROLLED BY A WALL SWITCH IN LIEU OF CEILING LIGHTING OUTLET IS ACCEPTABLE. CONVENIENT DUPLEX RECEPTACLE OUTLETS SHALL BE PROVIDED. RECEPTACLE OUTLETS SHALL BE EQUALLY SPACED AROUND THE ROOM WITH AT LEAST ONE DUPLEX RECEPTACLE OUTLET ON EACH WALL.

(c) **KITCHEN:** KITCHEN SHALL BE PROVIDED WITH ILLUMINATION. LIGHTING OUTLET SHALL BE CONTROLLED BY A WALL SWITCH LOCATED FOR CONVENIENT AND READILY ACCESSIBLE USE.

A SEPARATE KITCHEN APPLIANCE CIRCUIT SHALL BE PROVIDED SUPPLYING A MINIMUM OF THREE (3) GROUNDING TYPE DUPLEX RECEPTACLE OUTLETS. TWO (2) OF THESE RECEPTACLES SHALL BE READILY ACCESSIBLE FOR CONVENIENT USE OF PORTABLE APPLIANCES. NEW APPLIANCE CIRCUITS SHALL BE TWENTY AMPERE CAPACITY.

(d) **BATHROOM:** BATHROOMS SHALL BE ILLUMINATED. LIGHTING OUTLET SHALL BE CONTROLLED BY A WALL SWITCH. A RECEPTACLE OUTLET SEPARATE FROM THE LIGHT FIXTURES, SHALL BE PROVIDED AND SHALL BE LOCATED AT LEAST THIRTY (30) AND NOT MORE THAN FORTY-EIGHT (48) INCHES ABOVE THE FLOOR ADJACENT TO THE WASH BASIN AND NOT MORE THAN FOUR (4) FEET FROM THE BASIN.

(e) **ALL OTHER HABITABLE ROOMS:** ILLUMINATION FOR EACH HABITABLE ROOM SHALL BE PROVIDED. LIGHTING OUTLET SHALL BE CONTROLLED BY A WALL SWITCH. WALL SWITCHES SHALL BE LOCATED FOR CONVENIENT AND READILY ACCESSIBLE USE. CONVENIENCE DUPLEX RECEPTACLE OUTLETS SHALL BE PROVIDED WITH A MINIMUM OF TWO (2) RECEPTACLE OUTLETS EQUALLY SPACED AROUND THE ROOM. AN ADDITIONAL RECEPTACLE OUTLET CONTROLLED BY A WALL SWITCH IS ACCEPTABLE IN LIEU OF A LIGHTING OUTLET.

(f) **BASEMENT:** BASEMENT SHALL BE WIRED FOR A MINIMUM OF ONE LIGHTING OUTLET IN EACH 200 SQUARE FEET OR MAJOR FRACTION OF AREA FOR USE AS GENERAL ILLUMINATION. ALL ENCLOSED AREAS THAT MAY BE WALKED INTO SUCH AS TOILET ROOMS, FRUIT STORAGE ROOMS, UTILITY ROOMS, EXCAVATED AREAS UNDER PORCHES, ETC. SHALL BE PROVIDED WITH AT LEAST ONE LIGHTING OUTLET (EXCEPT COAL BINS).

STAIRWELL AND LAUNDRY AREA LIGHTING OUTLETS SHALL NOT BE COUNTED AS PART OF THE REQUIRED BASEMENT LIGHTING OUTLETS.

(c) **LAUNDRY AREAS:** LAUNDRY AREAS SHALL BE PROVIDED WITH ILLUMINATION. LAUNDRY CIRCUIT SHALL BE AN INDIVIDUAL CIRCUIT. A WALL-MOUNTED GROUNDING TYPE DUPLEX RECEPTACLE OUTLET SHALL BE PROVIDED, LOCATED NEAR THE LAUNDRY EQUIPMENT.

AN EXISTING DROP CORD RECEPTACLE OUTLET ON A SEPARATE CIRCUIT SHALL BE ACCEPTABLE PROVIDING IT IS A GROUNDING TYPE RECEPTACLE OUTLET NOT MORE THAN FIVE (5) FEET SIX (6) INCHES ABOVE THE FLOOR.

(h) **SPACE HEATING SYSTEM:** HEATING EQUIPMENT REQUIRING ELECTRICAL ENERGY FOR OPERATION AND/OR CONTROL SHALL BE PROVIDED WITH AN INDIVIDUAL CIRCUIT. A DISCONNECT SWITCH SHALL BE PROVIDED ON OR ADJACENT TO THE HEATING EQUIPMENT (EXCEPTION THERMO-PILE CONTROLLED FURNACES).

(i) **STAIRWELLS:** STAIRWELLS SHALL BE ADEQUATELY ILLUMINATED. LIGHTING OUTLETS SHALL BE CONTROLLED BY WALL SWITCHES. WALL SWITCHES SHALL BE LOCATED FOR CONVENIENT AND READILY ACCESSIBLE USE. SWITCHES SHALL NOT BE LOCATED WHERE IT IS NECESSARY TO USE DARKENED STAIR SECTIONS FOR THEIR OPERATION. ALL STAIRWELLS TO FINISHED PORTIONS OF DWELLING SHALL BE PROVIDED WITH MULTIPLE SWITCH CONTROL, ONE AT THE HEAD THE OTHER AT THE FOOT OF THE STAIRWELL.

(j) **SERVICE AND/OR FEEDERS:** SERVICE TO EXISTING DWELLING UNIT SHALL BE A MINIMUM OF ONE HUNDRED AMPERE, THREE WIRE CAPACITY. SERVICE EQUIPMENT SHALL BE DEAD FRONT HAVING NO LIVE PARTS EXPOSED WHEREBY ACCIDENTAL CONTACT COULD BE MADE. TYPE "S" FUSES SHALL BE INSTALLED WHEN FUSED EQUIPMENT IS USED.

EXCEPTION: EXISTING SERVICE OF FIFTY-FIVE AMPERE THREE WIRE CAPACITY, AND FEEDERS OF THIRTY AMPERE OR LARGER TWO OR THREE WIRE CAPACITY SHALL BE ACCEPTED IF ADEQUATE FOR THE ELECTRICAL LOAD BEING SERVED.

(k) **EXISTING WIRING AND EQUIPMENT:** EXISTING WIRING AND EQUIPMENT SHALL BE IN GOOD REPAIR. CIRCUIT EXTENSIONS MADE WITH FLEXIBLE CORD WIRING IN LIEU OF PERMANENT WIRING SHALL BE ELIMINATED.

## 1000-2. NEW WORK: ALL NEW WORK SHALL CONFORM TO THIS ORDINANCE.

## 1000-3. EVIDENCE OF INADEQUACY. EVIDENCE OF INADEQUACY SHALL BE ANY OF THE FOLLOWING:

- (a) USE OF CORDS IN LIEU OF PERMANENT WIRING.
- (b) OVERSIZING OF OVERCURRENT PROTECTION FOR CIRCUITS, FEEDERS OR SERVICE.
- (c) ILLEGAL EXTENSIONS TO THE WIRING SYSTEM IN ORDER TO PROVIDE LIGHT, HEAT OR POWER.
- (d) ELECTRICAL OVERLOAD.
- (e) MISUSE OF ELECTRICAL EQUIPMENT.
- (f) LACK OF LIGHTING FIXTURES IN BATHROOM, LAUNDRY ROOM, FURNACE ROOM, STAIRWAY OR BASEMENT.

APPENDIX 12

Format and Methodology for  
Developing a Local Rehabilitation  
Code, Regulations, or Guidelines

The approach presented here deals with the safety and health objectives of building regulation, since it is assumed that accepting reduced levels of performance related to these two areas will be more difficult to justify than similar reductions related to welfare or to property protection. However, similar approaches can be developed for analysis related to these goals also.

When considering the rehabilitation of a given existing building, it is necessary to analyze its intended use and occupancy, in order to determine what levels of performance should be required by the regulation. It is useful to consider separately three categories of attributes for which performance is regulated by codes:

- Structural safety
- Fire safety
- Accident safety, health and hygiene

In the suggested analytical approach, the proposed use of building is analyzed by considering a series of matrices. Each matrix requires the consideration of a set of code regulated attributes with respect to each occupancy group. For purposes of illustration, the CABO/BCMC occupancy index is used. However, a community applying this approach should substitute the occupancy classifications in its building code the occupancy designations and a brief description are as follows:

Group A - Assembly occupancy is the use of a building or structure, or any portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions or for recreation, or for food or drink consumption or awaiting transportation.

Group B - Business occupancy is the use of a building or structure, or any portion thereof, for office, professional, or service type transactions including normal accessory storage and the keeping of records and accounts.

Group E - Educational occupancy is the use of a building or structure, or any portion thereof, for the gathering together of persons for the purpose of instruction.

Group H - Hazardous occupancy is the principal use of a building or structure, or any portion thereof, that involves highly combustible materials or flammable materials or explosive materials that have inherent characteristics that constitute a higher fire hazard.

Group F - Factory-Industrial occupancy is use of a building or structure, or any portion thereof, for assembling, disassembling,

repairing, fabricating, finishing, manufacturing, packaging or processing operations that are not otherwise classified in this code

Group I - Institutional occupancy is use of a building or structure, or any portion thereof, for the purpose of providing medical treatment or care and sleeping facilities of persons who are mostly incapable of self-preservation because of age, physical or mental disability, or because of security measures not under the occupants' control

Group M - Mercantile occupancy is the use of a building or structure, or any portion thereof, for the display and sale of merchandise

Group R - Residential occupancy is the use of a building or structure, or any portion thereof, for sleeping accommodations and is not classed as an Institutional Occupancy

Group S - Storage occupancy is the principal use of a building or structure, or any portion thereof, for storage that is not classed as a Hazardous Occupancy or for the purpose of sheltering animals.

A more detailed occupancy description is included in the model codes

(a) - Structural Safety

A community might find it useful to carry out the analysis by considering in detail a matrix which addresses each of the building code's occupancy groups, and three attributes of structural safety

	VERTICAL LIVE & DEAD LOADS	SEISMIC LOADS	WIND LOADS
A - Assembly			
B - Business			
E - Educational			
F - Factory			
I - Institutional			
M - Mercantile			
R - Residential			
S - Storage			

#### Vertical Live and Dead Loads

It is unlikely that lower levels of performance may be acceptable here. If the proposed occupancy results in increased vertical live or dead loading, the building must be capable of supporting this loading utilizing design stresses permitted in the current building code where the building is constructed with archaic materials, appropriate research source data should be used in context with the historical experience of that type of construction material. Factors of safety required for archaic materials should be comparable to those required by the current building code. In the event it is not possible to establish allowable design stresses for a design analysis, it may be necessary that load tests be conducted. The amount of load to be applied varies depending upon the materials utilized since all materials do not perform in an identical manner. Higher factors of safety are sometimes applied to concrete, masonry and wood construction than are applied to other materials due to their inherent natural variability. Most codes and a variety of national standards prescribe load test procedures.

#### Seismic Loads

Buildings built to comply with earlier editions of building code are likely not to have been designed for the magnitude of seismic forces required by the current building code.

Appendices 9 and 10 contain two specific examples of regulations establishing reduced requirements for seismic design in rehabilitated buildings when compared to new construction requirements. A community must carefully analyze its building stock in relation to its seismic risk. It must determine if the proposed occupancy results in an increase to "life risk", from a structural viewpoint, in the event of building failure. As a general premise, one could assume that if the proposed use contains a greater number of occupants it would increase the "life risk" in the event a building collapsed during an earthquake. A further consideration would be the number of hours a day or days per week that the building is occupied, considering the probability of an earthquake occurring when the building is occupied. Also, such an analysis may consider the relative importance of particular buildings or classes of buildings to the community (e.g., hospitals, power stations, fire stations, etc.)

The "Tentative Provisions for Development of Seismic Regulations for Buildings (ATC 3-06)" contains a chapter on Systematic Abatement of Seismic Hazards in Existing Buildings. Following procedures of this type may be desirable for buildings being rehabilitated or undergoing occupancy changes in high seismic risk areas.

#### Wind Loads

Wind forces must be considered as well as seismic forces when buildings undergo rehabilitation or a change in occupancy or use. Seismic forces may be more critical, however, since earthquakes cannot be predicted and occupants are unable to evacuate the structure when an earthquake occurs. Occupants of structures located in areas subject to strong wind forces such as tornados or hurricanes are generally warned well in advance of the event and can go to areas of refuge.

Additionally, if a building has been in existence for a number of years, it has probably been subjected to the maximum expected wind force for the area, except in specific hurricane areas. Accordingly, one could reasonably assume that wind design would not be a major consideration for buildings undergoing rehabilitation or a change of occupancy, and a reduction of the level of performance required for building rehabilitation compared to that for new construction, for most occupancies, may be more acceptable and easier to justify.

#### (b) Fire Safety

Codes provide for life safety in buildings by regulating various fire safety features associated with the buildings' intended use. The basic premise is to assure that all occupants in all occupancies are provided with an equivalent level of life safety. These regulations are based on various considerations including ignition hazards, fuel loading, occupant density, panic, sleeping, etc. For new construction these regulations are set down in a straight forward manner in all building codes. However, when an existing building is being rehabilitated or changed from one occupancy to another, the issue is more complex.

If a community wishes to explore the possibility of modifying or waiving new construction fire safety requirements for buildings being rehabilitated or undergoing a change of occupancy, while maintaining a reduced but acceptable level of safety, it must evaluate the fire safety features of existing buildings relative to the hazard of the proposed new occupancy. In some cases, the interaction of fire safety features and hazards between existing

buildings and proposed use will be acceptable. In other cases, the interaction may even make the building unsuitable for conversion to the new use.

A methodology should be developed for analyzing particular existing buildings for specific proposed occupancies. Such a methodology may consider various fire-related hazards, such as:

- (1) Ignition Hazards: The hazard due to open flame, heating, cooking or electrical equipment
- (2) Smoldering Fires: The hazard of fire developing undetected.
- (3) Spread of Fire: The hazard of fire spreading in the building once ignited. This is controlled by limitations on flame spread on finish materials, especially in exitways and corridors. Also by amount of combustibles in the building assembly
- (4) Spread of Smoke: Smoke is the primary life hazard. It spreads through unenclosed stairways and vertical shafts, open doors, ducts, etc. It may cause panic.
- (5) Panic: The hazard relates to building occupants' behavior, and partly depends on familiarity with the building, number of occupants, etc.
- (6) Exiting: The means of exiting from or within the building to a place of refuge within a given time period. Hazard is controlled by limitations on deadend corridors, enclosure of stairways, doors and closures, and similar means.
- (7) Community Safety: The hazard of fire spreading to adjacent buildings. Prevention of fire spread between any two buildings is dependent on the buildings' spatial relationship, type of construction, roof covering, wall protection and reasonable expectations of the capability of the fire suppression services.

A matrix relating such hazards to occupancy groups may be useful in the analysis.

PROPOSED OCCUPANCY	HAZARD						
	(1) Ignition	(2) Smoldering fires	(3) Spread of fire	(4) Spread of smoke	(5) Panic	(6) Exiting	(7) Community Safety
A - Assembly							
B - Business							
E - Educational							
F - Factory							
I - Institutional							
M - Mercantile							
R - Residential							
S - Storage							

A community may rank order the hazards for each occupancy category based on knowledge of the building stock, local fire history and local firefighting capabilities. Such a rank ordering, reflecting specific community characteristics, can then be used to identify those building code requirements which may be modified or alleviated in the case of rehabilitation or change of occupancy, without incurring an unacceptable level of risk.

(c) Accident Safety, Health and Hygiene

Accident safety, health and hygiene are each regulated by a variety of building code provisions. Current regulations require that buildings should be brought to a condition of safety commensurate with that required for new buildings, when undergoing extensive rehabilitation or change of occupancy. A community may analyze its particular situation to determine specific areas where less than full compliance with new construction requirements would be acceptable in rehabilitated buildings, without incurring an unacceptable level of safety.

A similar analysis to that recommended for fire safety may benefit from a similar matrix.

ENVIRONMENTAL REQUIREMENTS									
PREMISES CONDITION									
Rubbish, weeds									
Grading and drainage, ponding									
Insect and rodent control									
Paved areas repair									
Exhaust vent discharge									
EXTERIOR STRUCTURE									
Weatherproof roof									
Weatherproof walls									
Weathertight and operable openings (doors and windows)									
Glazing									
INTERIOR STRUCTURE									
Lead-based paint									
Bathroom and kitchen floors									
Treads and risers - uniform dimensions									
Obstruction in egress - headroom and width									
Handrails, guardrails									
Walls and ceilings - structurally stable									
Floor surfaces - uneven, obstacles									

LIGHT, VENTILATION, AND SPACE REQUIREMENTS									
LIGHT									
Window area, no artificial									
Halls and stairways									
Other spaces									
VENTILATION									
Window area									
Toilet rooms, window or mechanical									
Cooking facilities									
Mechanical ventilation, if not natural									
DWELLING UNITS									
Privacy									
Common access									
Basement rooms									
SPACE									
Floor area									
Ceiling heights									
Acoustics									
PLUMBING FACILITIES									
REQUIRED FACILITIES									
Dwelling unit water closet & lav									
Accessibility, adequate fixtures									

Assembly  
Business  
Educational  
Factory/Industrial  
High hazard  
Institutional  
Mercantile  
Residential, hotel  
Residential, multifamily  
Residential, 1 & 2 family  
Storage

## FOREWORD

"develop model rehabilitation guidelines for the voluntary adoption by States and communities to be used in conjunction with existing building codes by State and local officials in the inspection and approval of rehabilitated properties "

- increased rehabilitation costs
- discouragement of otherwise feasible rehabilitation projects
- time delays due to lengthy municipal approval requirements
- encouragement of illegal activities by persons seeking to avoid unreasonable code requirements

"publish such guidelines for public comment not later than one year after the enactment of this section, and promulgate them no later than eighteen months after such date of enactment."

Rehabilitation Guidelines, Volume 1  
Administrative and Legal Guidelines for Building Rehabilitation  
Rehabilitation Guidelines, Volume 2  
Technical Guidelines for Residential Rehabilitation  
Rehabilitation Guidelines, Volume 3  
Guideline on Fire Ratings of Archaic Materials and Assemblies

[illegible]



existing DWV (drainage, waste, and vent) systems. Methods and criteria are presented for relocating fixtures, adding new fixtures to existing DWV systems, extending existing DWV systems, and installing new DWV systems in existing buildings. Through-the-wall venting is also discussed.

Volume 3, Fire Ratings of Archaic Materials and Assemblies, is intended for use by code officials and designers in determining the fire ratings of building materials and assemblies that are no longer listed in current building codes or related reference standards. Extensive entries are provided for the fire ratings of walls, columns, floors and ceilings. Introductory material discusses flame spread, the effects of penetrations, and methods for determining the ratings of assemblies not listed in the guideline.

The draft rehabilitation guidelines were prepared by the National Institute of Building Sciences under contract to the Department of Housing and Urban Development. Issues addressed in the guidelines were selected from a March, 1978 study by the Institute entitled "Code-Related Rehabilitation Problems: Problem Identification/Verification/Feasibility Report," which identified approximately fifty code-related problems and determined that eighteen of these problems were feasible to address within the state-of-the-arts and within the legislated time constraints. Actual problem selection was made by a committee formed by the Institute under the legislative mandate that:

*"such guidelines shall be developed in consultation with . . . appropriate national organizations of agencies and officials of State and local governments, representatives of the building industry, and consumer groups, and other interested parties."*

The committee formed by the Institute was composed of representatives of the following organizations:

- Council of American Building Officials
- National Conference of States on Building Codes and Standards
- National Fire Protection Association
- American Institute of Architects
- Building Code Action
- National Home Improvement Council
- National Housing Rehabilitation Association
- National Association of Home Builders
- AFL-CIO Building and Construction Trades Department
- Association of Major City Building Officials
- U.S. Conference of Mayors
- National League of Cities
- National Trust for Historic Preservation
- U.S. League of Savings Associations
- National Association of Housing and Redevelopment Officials

The intent of these guidelines is to reduce, while maintaining essential levels of health and safety, those regulatory requirements that create unnecessary constraints, time delays, and higher costs for building rehabilitation.

Volume 1, Administrative and Legal Guidelines for Building Rehabilitation, is designed for use by building officials, members of the legislative and executive branches of State and local governments, and related commissions and organizations that are involved in developing or implementing building regulations. Volume 1 covers the following topics:

- The Guideline for Setting and Adopting Standards for Building Rehabilitation provides an introduction and background to the building regulations that affect rehabilitation. It shows methods for identifying existing regulatory conditions in a community and lists recommendations for amending or modifying the community's regulatory system to encourage rehabilitation.
- The Guideline for Municipal Approval of Building Rehabilitation outlines a model submittal, review, and approval process for rehabilitation that is recommended for adoption by municipal building departments.
- The Statutory Guideline for Building Rehabilitation provides recommendations for statutorily modifying existing code decision making systems with the express goal of promoting rehabilitation.
- The Guideline for Managing Official Liability Associated with Building Rehabilitation addresses the liability of code officials involved with the regulation and enforcement of building rehabilitation, and provides recommendations for minimizing liability problems.

Volume 2, Technical Guidelines for Residential Rehabilitation, is intended for use by code inspectors, designers, and builders involved in residential rehabilitation. Volume 2 covers the following topics:

- The Egress Guideline for Residential Rehabilitation lists design alternatives for the components of egress that are regulated by current codes: number of exits, corridors and stairs, arrangement of exits, travel distance, dead-end travel, and exit capacity and width.
- The Electrical Guideline for Residential Rehabilitation discusses the establishment of standards for electrical rehabilitation, gives procedures for conducting inspections of electrical systems, and presents problems and solutions associated with electrical rehabilitation.
- The Plumbing DWV Guideline for Residential Rehabilitation includes a background discussion of basic drainage and hydraulic concepts, followed by criteria to determine the condition and capacity of

Major subcontractors used by the Institute for addressing the selected problems included:

- Building Technology, Inc
- Joseph Stein
- Davidson Laboratory, Stevens Institute of Technology
- Council of American Building Officials
- Bradford Corporation
- National Fire Protection Association
- Arthur D Little, Inc
- National Conference of States on Building Codes and Standards
- Vincent Brannigan, Esq

#### TABLE OF CONTENTS

### Chapter 1 Egress Guideline for Residential Rehabilitation

#### Introduction

Arrangement of the Guideline  
Occupant Load

- 1 Number of Exits
- 2 Horizontal Exits
- 3 Interior Stairs/Enclosures
- 4 Exterior Exit Stairs
- 5 Fire-Escape Stairs
- 6 Arrangement of Exits
- 7 Travel Distance
- 8 Dead End Travel
- 9 Corridors and Exterior Exit Balconies
- 10 Exit Capacity/Widths
- 11 Construction Details and Specifications

### Chapter 2 Electrical Guideline for Residential Rehabilitation

#### Introduction

- 1 Establishing Standards for Electrical Rehabilitation
- 2 Inspection
- 3 Problems and Solutions

### Chapter 3 Plumbing DWV Guideline for Residential Rehabilitation

#### Introduction

#### Use

#### Basic Drainage and Hydraulic Concepts

- 1 Determining the Condition of the Existing DWV System
- 2 Determining the Capacity of the Existing DWV System
- 3 Relocating Fixtures
- 4 Adding New Fixtures to Existing DWV Systems, Extending DWV Systems, and Installing New DWV Systems in Existing Buildings
- 5 Through-the-Wall Venting

Appendix: Examples of Acceptable DWV Practices for Building Rehabilitation

## CHAPTER 1

### EGRESS GUIDELINE

#### FOR

### RESIDENTIAL REHABILITATION

#### INTRODUCTION

Egress requirements create a great number of technical problems and constraints in building rehabilitation. Existing exits which appear to be adequate will often not comply with the highly specific requirements for new building construction. Code requirements should be strictly followed whenever possible. But where literal compliance proves impractical, flexibility is essential.

The 1976 Edition of the Life Safety Code states as a purpose "to avoid requirements which might involve unreasonable hardships or unnecessary inconvenience or interference with the normal use and occupancy of a building" while insisting upon "compliance with a minimum standard for fire safety necessary in the public interest." The guidelines embrace this purpose by encouraging and suggesting design solutions that will meet the intent, though not necessarily the specifics, of the respective codes.

A safe means of escape from fire is fundamental to fire protection. But it is not the only way to provide life safety from fire, and it is not always the most practical: fire officials would need hours to evacuate New York's World Trade Center. Different building types will often pose different egress problems. The code requirements for egress must be responsive to the qualities and needs of the people to be protected and the hazards that they face. The guidelines developed below apply to residential uses: one and two family dwellings, townhouses, condominiums and apartment buildings less than 75 feet in height.

The differing requirements of the three model building codes (Basic, Standard, Uniform) and the Life Safety Code illustrate that there is no single correct solution. The codes reflect the differences in opinion and philosophy that exist whenever professional judgement must be exercised. The issue is not which approach is most correct, but which is most appropriate once the character of the building and the occupants is known.

Given that a fire ignition has occurred, there are two basic approaches to solving the life safety problem: 1) protect the people; 2) control the fire. The people could either be evacuated from the building or protected in place until the fire is extinguished and the danger passes. The fire can be controlled by suppression (e.g., automatic sprinklers) or compartmentation (e.g., fire rated construction, protection of horizontal/vertical openings).

Smoke control systems prevent smoke and other fire gases from spreading throughout a burning building. Exits free of smoke can be used more safely and efficiently; the protection of

occupants becomes more feasible because life-threatening combustion products are removed from the building. No specific recommendations have been made concerning the use of smoke control systems, but the potential of the rapidly improving technology must be recognized.

In residential buildings, the simplest and most direct solution is to evacuate the occupants. This may avoid the need to upgrade the fire resistance of major structural elements such as walls, floor/ceiling assemblies, and doors. Such major structural renovation is counter to the goal of decreasing the cost and complexity of building rehabilitation, particularly when alternatives are usually available. However, the approaches mentioned above are interrelated such that a single fire protection measure may have more than one impact. For example, a suppression system can potentially control the fire, provide an emergency alarm to the occupants and possibly the fire department, and increase the time for safe escape by earlier detection of the fire and protection of the egress path.

The evacuation system consists of three interrelated component parts, and the guidelines build upon these relationships. The components are: fire detection and alarm; a path of escape or means of egress; and a safe destination. In a one and two family dwelling "fire detection and alarm" is a smoke detector; the "means of egress" is the front door; the "safe destination" is the outside or some other protected area of refuge.

The concepts are equally applicable to apartment buildings, though the problems and requirements are more complex. Fire detection and alarm is more difficult because a smoke detector will only warn the occupants in a single unit, not the entire building. Two or more exits, instead of a single exit, are generally required. But once the weaknesses of the egress system are understood, the guidelines can help identify practical solutions. For example, fire detection and suppression systems can provide added time to escape through earlier detection or fire control. Improved lighting or handrails might compensate for irregular stairs when the number of occupants is small and the people are physically able.

The examples cited and the egress guidelines that have been developed are not exhaustive. Each building will present special problems that will require special treatment. Once the intent of the code requirement and the impact of the deficiency are understood, it may be possible to fashion an alternative solution. But the most important consideration will always be the nature of the occupants and the use and arrangement of the building.

The assumptions underlying all the egress guidelines are that the number of occupants will be small, they will be familiar with their

surroundings, they will react quickly and properly to an alarm of danger, and that they are physically and mentally capable of using whatever means of escape are provided. Special care must be taken should any of these assumptions not apply.

#### ARRANGEMENT OF THE GUIDELINE

The egress guidelines have been arranged as follows:

The occupant load (see next section), the physical characteristics of the building (e.g., height, area) and the use (e.g., apartment) determine the minimum number of exits that are required. Guideline A: NUMBER OF EXITS addresses this area.

Once the minimum number of exits is known, the number of available exits is counted. The concern is that the exits are of the proper type and that minimum fire separation requirements, if any, are met. For example, some codes place limits on the use or number of horizontal exits. Most codes require stairs to be protected by fire-rated construction. Guidelines have not been developed for every acceptable egress component, but Guidelines B 1-B 4: HORIZONTAL EXITS; INTERIOR STAIRS/ENCLOSURES; EXTERIOR EXIT STAIRS; FIRE ESCAPE STAIRS apply here.

The location and layout of the qualifying exits is then examined. See Guideline C: ARRANGEMENT OF EXITS. Improper arrangement may require that additional exits be provided.

Access to these exits must also be evaluated and corrective measures must be taken as needed. Guideline D: TRAVEL DISTANCE; Guideline E: DEAD-END TRAVEL; and Guideline F: CORRIDORS AND EXTERIOR EXIT BALCONIES should be applied at this time.

Once the number of required exits has been provided and their arrangement and access is satisfactory, the capacity of the exits and minimum width dimensions must be considered. Guideline G: EXIT CAPACITY/WIDTHS applies here.

Finally, the specific construction details of the egress components must be evaluated. See Guideline H: CONSTRUCTION DETAILS AND SPECIFICATIONS.

Within each of these eight (A-H) Guidelines, there is a 3-part discussion. First, there is a summary of code requirements and intent, including a discussion of the respective requirement in the Basic, Standard, Uniform and Life Safety Codes. Second, there is a discussion of how to identify conditions in the building, to determine whether a problem exists. Third, there is a discussion of the problem, its solution(s) and a general narrative relating the two.

References to the applicable sections of the model codes have been included throughout the Guideline. The references are as follows:

BOCA	Basic Building Code (1978 Edition)
NFPA	NFPA Life Safety Code (1976 Edition)
SBCC	Standard Building Code (1979 Edition)
UBC	Uniform Building Code (1979 Edition)

#### OCCUPANT LOAD

The occupant load is the number of people that can be expected to be present in the building. The occupant load is used to calculate the number of required exits and the capacity of these exits:

The occupant load may not be reduced below a minimum specified in the code, regardless of the number of people actually expected. However, if the actual occupant load will exceed the minimum specified in the code, the actual occupant loading is used.

Though each code specifies how the occupant load is to be calculated, the general method is to divide the total gross floor area by a minimum design density of 200 sq ft. per person. The only exception is 300 sq ft. per person in one and two family dwellings under the Uniform Building Code. The occupant load for each floor is also computed though the method may vary somewhat (BOCA: 606 0; UBC: 3301(d), Table 33-A; SBCC: 1105 1; NFPA: 5-3 1, 11-1 5).

#### 1 NUMBER OF EXITS

##### SUMMARY OF CODE REQUIREMENTS AND INTENT

The codes specify the minimum number of exits that must be provided. Other considerations such as travel distance, remoteness, or capacity of existing exits may require additional exits to be provided. These issues are discussed separately and, therefore, are not considered here.

##### Code Intent

Requirements for a minimum number of exits are established to increase the reliability of the means of egress system. The intent is that for any single fire ignition that prohibits travel to one exit, there will be an alternate exit that can be used. This does not address multiple fire ignitions, as may be likely with fires that are incendiary (intentionally set).

Having a minimum of two means of escape is one of the most fundamental principles of life safety from fire. The provision that certain occupancy uses only require one exit usually carries a parallel requirement for operable windows of specified minimum dimensions, so even these buildings could be considered to have two means of escape. Every effort should be made to comply with the requirements for the number of required exits, and variances should be granted only in the most exceptional case of hardship or where the hazard is clearly small.

##### Code Analysis

##### BASIC BUILDING CODE - 1978

Not less than two exits serving every story, except in one and two family dwellings, with the following exceptions where one exitway is accepted (609 2, 609 3):

- on the first story of buildings 2000 sq ft or less with an occupancy load less than 50 on the first story;
- residential multi-family buildings, two stories or less, with four or less dwelling units per floor, maximum exitway access travel of 50 ft, minimum one hour fire resistance rating of exitway enclosure, and minimum one hour opening protection.

##### UNIFORM BUILDING CODE - 1979

One exit is required from every building or usable portion thereof, except if there are over ten occupants, there must be two exits. Floors above the first story having an occupant load of more than ten shall have not less than two exits, subject to the following two exceptions:

- unless required elsewhere, only one exit shall be required from a second floor area within an individual dwelling unit;
- two or more dwelling units on the second floor may have access to only one common exit when the total occupant load does not exceed ten.

Floors above the second story and basements require not less than two exits except when used exclusively for the service of the building; only one exit shall be required from a basement within an individual dwelling unit. Every story or portion thereof having an occupant load of 501 to 1000 shall have not less than three exits; four exits are required when the occupant load exceeds 1000 (3302(a), Table 33-A, A-1215.(b,d)).

## STANDARD BUILDING CODE - 1979

Not less than two independent exits except for one and two family dwellings and other exceptions noted below

Minimum Number of Exits	Occupant Load
2	50-500
3	501-1000
4	more than 1000

Residential occupancies having not more than four dwelling units per floor, less than 3500 sq ft per floor, and less than three stories in height may be served by one common exit. The travel distance from the entrance door of any living unit to the single exit cannot exceed 30ft. (1103.2)

## NFPA LIFE SAFETY CODE - 1976

Two separate exits are required with the following exceptions:

- one and two family dwellings;
- a unit with direct exit to the street at ground level, by an outside stairway, or by a one-hour rated enclosed stair serving only that apartment;
- any height building with four or less units per floor with direct access to a smokeproof tower or outside stair (20 ft. maximum travel distance);
- building three stories or less with one-hour exit and protected openings, corridors with one-hour rating, 20 ft. maximum travel distance (11-3.2.4).

Summary

A minimum of two exits is generally required, although some residential occupancies can have only one if certain requirements are met.

IDENTIFYING EXISTING CONDITIONS

Determine the required number of exits by considering (depending on the particular code in force):

- occupancy (one and two family vs. multiple dwelling)
- area (for computation of occupant load)
- number of dwelling units

- number of stories;
- arrangement of spaces (service rooms, two story dwelling units, etc.)

Determine the number of apparent exits in the proposed building, by counting the following exit elements discharging to a public way:

- exterior exit/door
- horizontal exit
- exit passageway
- lobby or vestibule
- interior stairway
- exterior stairway
- ramp
- fire escape

The number of exits is "apparent" because an element may be determined not to be an acceptable exit element because of violation of some other code provisions addressed later in this Guideline.

Note that several required stairways and passageways may combine to discharge through a single exit passageway, lobby or vestibule, though limits are imposed by some codes

PROBLEMS AND PROPOSED SOLUTIONS

## 1.1

Problem: One exit available in a three story building when two exits are required.

Solution: Consider adding a smoke detection system providing an alarm to all building occupants, or a total automatic suppression system. This solution should be considered only if each story arrangement meets the special conditions for a single exit (0.9., number of occupants or dwelling units, distance of exitway access travel, enclosure of exitway), and the stairway is well designed (dimensions as required by code, handrails, illumination, etc.).

Discussion: The detection system will allow additional time for escape while the fire is still developing. The suppression system will retard the growth of the fire while providing an alarm to the building occupants. The fact that a single exit is allowed by code for the specified arrangement up to two stories reflects the view that fire is unlikely to block the single exit due to

Discussion: In accepting this solution, an analysis should be made which takes into account both the capacities of anticipated building occupants, and the local firefighting capabilities.

## 2 HORIZONTAL EXITS

### SUMMARY OF CODE REQUIREMENTS AND INTENT

#### Code Intent

The code intent is to provide an area of refuge within the building. A horizontal exit is a passage from one building area to another area. The areas must be separated by fire resistant construction with the appropriate opening protection (self-closing or automatic closing fire doors).

A horizontal exit does not have to be limited to one building, and can be a bridge or protected passageway from one building to another.

#### Code Analysis

A horizontal exit is a way of passage from a building to a protected area of refuge, on approximately the same level, within the same or another building. The area of refuge must afford safety from fire and smoke.

Walls or partitions forming the horizontal exits must have a fire resistance rating of two hours. Opening protection (e.g., fire doors) must have a fire resistance rating of 1½ hours. Fire doors in horizontal exits must be either self-closing or automatically close upon activation of a smoke detector, except that only automatic doors are allowed under the Uniform Building Code. Doors must swing in the direction of exit travel.

The Standard and Life Safety Codes provide that horizontal exits cannot comprise more than one-half the required exits. The Uniform, Standard and Life Safety Codes require that the area of refuge have an enclosed stair, door or other "standard" exit that leads directly to the exterior. The Basic Code requires one interior stairway or smoke-proof enclosure on each side of the horizontal exit in multi-story buildings.

The area of refuge must be of sufficient area to be occupied by the total occupant load of the connected areas based upon three sq. ft. per person (net). The codes contain various other prescriptive requirements relating to dimensions, materials and hardware (BOCA: 614.0; UBC: 3307; SBCC: 1119; NFPA: 5-2.4).

the distance limitation on exitway access and the requirement of the exitway enclosure.

1 2

Problem: One exit available in a building over three stories

Solution: Possible consideration should be given to making the single exit a smokeproof tower or an exterior stair. This solution should be considered only if each story arrangement complies with the condition for a single exit (e.g., number of occupants or dwelling units, distance of stairway access travel).

Discussion: This solution is acceptable under the Life Safety Code, but is not recognized by any of the model codes or by most building codes. However, it is the traditional design method in Europe and much of the world. This solution should be considered only after extensive analysis, taking into account local firefighting capabilities.

1 3

Problem: A building has two or more exits, but fewer than required

Solution: If three exits are required, consider accepting two exits if the building is provided with a total automatic suppression system. (No reduction of exits is recommended if a detection system is used, except as discussed in Problem 1.1 above.) If four exits are required, consider accepting three exits if the building is provided with a total automatic suppression system, and if the number of people in the building is not significantly higher than the smallest occupant load specified in the code for which four exits must be provided.

Discussion: The suppression system will retard the growth of the fire while providing an alarm to the building occupants, thereby allowing the extra time needed to escape through the reduced number of exits. The number of exits should never be reduced by more than one.

Note that the number of required exits is only a minimum. Consideration of arrangement, travel distance, capacity, etc. may require that either additional exits be provided, or that a reduction in the number as suggested in this Guideline not be permitted.

1 4

Problem: Less exits are available than required

Solution: Consider the use of escape systems, such as fire escapes, ladders, fire balconies, etc. which are not normally accepted by codes as exit elements for new construction, in order to provide the new construction, in order to provide the required number of exits.

IDENTIFYING EXISTING CONDITIONS

Determine the fire resistance ratings of the wall-partition assembly and protection of openings by reference to the code in effect, current or past listings, labels, or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

## 2.1

Problem: Fire resistance rating of the wall or partition, as determined in 2 above, below that required by code

Solution: Upgrade the wall or partition construction to meet code requirements.

Discussion: The fire resistance of the corridor enclosure should be improved by repairing the existing construction or adding a new layer(s) of fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

-or-

Solution: Accept wall or partition of one hour fire resistance if building provided with automatic detection system providing alarm to occupants of that floor

Discussion: The added time provided by the detection system will permit the occupants to escape into the area of refuge, and from there to the outside of the building.

## 2.2

Problem: Fire resistance of the opening protection as determined in 2. above, below that required by code

Solution: Install local sprinklers over opening protection having a minimum fire resistance rating of one hour. Such sprinklers may be connected to the domestic water supply. Opening protection with a fire resistance rating of less than one hour must either be upgraded to one hour or replaced.

Discussion: The reduced temperature rise resulting from the local sprinkler's water spray will compensate for the reduced fire resistance rating (one hour v. 1 1/2 hours).

3 INTERIOR STAIRS/ENCLOSURESSUMMARY OF CODE REQUIREMENTS AND INTENT

Enclosed stairs are recognized as an exit by all codes if they are properly designed and constructed. In multi-story buildings they are the most likely type of exit to be encountered. They

provide a protected means for evacuation of a building by its occupants. By their nature as vertical shaft through a building, stairs also provide a potential path for the spread of fire from floor to floor.

## Code Intent

Requirements for an enclosure of stairs with a minimum fire resistance rating are established in order to achieve two objectives:

- to provide a protected way from any story of a building to a public area or to an area of refuge,
- to limit the spread of fire from floor to floor.

Code Analysis

## BASIC BUILDING CODE - 1978

Required interior exitway stairs must have an enclosure of 1-hour fire resistance rating in buildings three stories or less, 2-hour fire resistance rating in buildings four stories or more. Stairs within a single dwelling unit are excepted. Also excepted, when automatic sprinkler protection is provided, are stairs between no more than three communicating floors close to street level which serve no more than one-half the required occupant load and which have adequate capacity for all occupants of all the communicating levels

Stairway doors must be self-closing and have a 1-hour fire resistance rating in 1-hour construction and 1 1/2 hour rating in 2-hour construction. Other openings are limited in area and must be protected (616.9.2)

## UNIFORM BUILDING CODE - 1979

Existing apartment houses are governed by Appendix Chapter 12, Existing Buildings. Every interior stairway must be enclosed with walls of at least 1-hour fire resistive construction. Wood lath and plaster in good condition is acceptable as 1-hour construction for this purpose. The stairway need not be enclosed in a continuous shaft. Enclosures are not required if an automatic sprinkler system is provided in all portions of the building except apartments.

Stairway doors must be self-closing, tight fitting, smoke and draft control doors with a rating of 20 minutes.

STANDARD BUILDING CODE - 1979

Required exit stairs must be enclosed in 1-hour fire resistive construction in buildings three or less stories in height; 2-hour fire resistive construction in buildings four or more stories in height. Exceptions are similar to those noted above for the Basic Building Code (1106)

Stair doors must be 1-1/2 hour rating assemblies for 2-hour walls, and 1-hour rating assemblies for 1-hour walls.

NEPA LIFE SAFETY CODE - 1976

Stairways must be protected as follows:

Fire resistance of walls in buildings of one - three stories shall be 1-hour; four or more stories, 2-hours. Fire protection rating of doors in buildings of one - three stories shall be 3/4-hour; In buildings provided with total automatic sprinkler protection, the fire resistance of walls in buildings of one - three stories may be reduced to 3/4 hours; four or more stories, 1-hour. The fire protection rating of doors in sprinklered buildings of any height shall be 3/4 hour (11-3 8 3 1 1)

Exceptions, including the exception allowing unenclosed stairs as part of communicating floors, are similar to those noted above for the Basic Building Code (6-1)

SUMMARY

The Basic, Standard, and NEPA Life Safety Code generally have identical provisions (2-hours with 1 1/2 hour door over three stories; 1-hour enclosure and door below four stories), except that NFPA requires only a 3/4 hour door in a 1-hour stair enclosure. The Uniform Code Appendix Chapter 12 imposes much more lenient requirements for existing residential buildings

IDENTIFYING EXISTING CONDITIONS

- Determine location of all unenclosed stairs
- Determine the fire resistance rating of stair enclosures and doors by reference to the code in effect, current listing, or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

3 1  
Problem: An unenclosed stair is used for egress and does not meet the applicable code exception for communicating floors.

Solution: The stair may be enclosed at each story by the fire resistive construction required for the stair enclosure. The walls forming this enclosure may be located on each story wherever convenient, but as close as possible to the stair.

If, in implementing this arrangement, a limited number of apartment doors will be required to open directly into the stair enclosure, these doors must be automatic closing doors, rated as required for stairway doors by the code in effect, and must meet all other requirements for stairway doors

Discussion: The proposed solution provides a protected way of escape from any story while limiting the potential of fire spreading from floor to floor

3 2

Problem: A 1-hour enclosure is required, and an unenclosed stair does not meet the applicable code exceptions for communicating floors.

Solution: Consider enclosing the stair with a wired glass partition in a metal frame providing 3/4 hour fire resistance.

Discussion: This solution is often least objectionable from architectural and cost considerations. Reducing the required fire resistance rating from 1 hour to 45 minutes should still allow adequate time for safe escape. Judgement should be exercised to assure that the occupant load is not excessive for this solution

3 3

Problem: The fire resistance rating of the stair enclosure, as determined above, is below that required by the code in effect:

Solution: The fire resistance of the stair enclosure should be improved by repairing the existing construction or adding a new layer(s) of fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

4 EXTERIOR EXIT STAIRS

SUMMARY OF CODE REQUIREMENTS AND INTENT

Code Intent

The code intent for regulating means of egress components is to limit egress routes which require too much time or are too difficult to traverse and afford too little fire protection. An important consideration for an exterior stair is its proximity to openings in the exterior of the building. A fire in the interior could break out exterior windows and cause the stair to be impassable

A visual enclosure is sometimes required for exterior or outside stairs so that acrophobia (fear of heights) will not impede travel



or lead to panic.

#### Code Analysis

##### BASIC BUILDING CODE - 1978

Exterior stairs may be used: (1) in buildings not exceeding five stories or 65 feet in height; and (2) where at least one door from each tenant opens onto a roofed-over open porch or balcony leading to the stairway. In buildings three or more stories in height, openings below or within 10 feet horizontally of the exterior stairs must be protected by automatic doors and windows of 3/4 hour fire resistance. Exterior stairs must conform to the requirements for interior stairs in all other respects (619.0)

##### UNIFORM BUILDING CODE - 1979

Exterior stairs must meet the requirements for inside stairs except for opening protection. In buildings three or more stories in height, openings below or within 10 feet measured horizontally must be protected by a self-closing fire assembly having a 3/4 hour fire resistive rating. In existing buildings, the only requirements are that exterior stairs must be noncombustible or of wood of not less than 2-inch nominal thickness with solid treads and risers. (3305; Appendix - Chapter 12, 1215(g)).

##### STANDARD BUILDING CODE - 1979

Exterior stairs may be used: (1) in buildings not exceeding six stories or 75 feet in height; and (2) where at least one door from each tenant opens onto a roofed-over open porch or balcony leading to the stairway. Openings below and within 10 feet horizontally of the exterior stair must be protected with 3/4 hour fire resistive automatic opening protectives; opening protection is not required for buildings not more than three stories in height where all parts of the exterior stair are at least 6 feet from the building wall. Exterior stairs must conform to the requirements for interior stairs in all other respects. (1129)

##### NFPA LIFE SAFETY CODE - 1976

Where interior stairs are required to be enclosed, exterior stairs must be separated from the interior of the building by fire resistive walls as required for interior stair enclosures with fire doors or fixed wire glass windows protecting any openings therein. Such protection is not required in buildings three stories or less in height where there is a remote second exit. Other openings within specified distances must be protected. A "visual" enclosure must be provided to protect persons afraid of heights. Exterior stairs must conform to the requirements of interior stairs in all other respects. (5-2.5)

#### IDENTIFYING EXISTING CONDITIONS

- Determine the fire resistance rating of the protection of walls or openings within or adjacent to the exterior stairs by reference to labels, the code in effect, current listings or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

#### PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

4.1

Problem: Fire resistance of the opening protection as determined above below that required.

Solution: Upgrade the fire resistance of the opening protection by repairing the existing construction or adding a new layer(s) of fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

-or-

Solution: Install local sprinklers over opening protection. Such sprinklers may be connected to the domestic water supply.

Discussion: The water spray on the exposed surface will compensate for the reduced fire resistance rating

#### 5. FIRE ESCAPE STAIRS

##### SUMMARY OF CODE REQUIREMENTS AND INTENT

##### Code Intent

The code intent is to regulate the quality of the required exits. Fire escapes are not favored because they are more difficult to traverse and afford less protection to occupants than other types of exits, such as enclosed interior stairs or exit passageways. However, properly designed and protected fire escapes can be safely used and provide a practical solution when the existing number of exits or exit capacity is less than required.

##### Code Analysis

##### BASIC BUILDING CODE - 1978

Fire escapes are permitted only on existing buildings, and then only when "more adequate exitway facilities cannot be provided." Fire escapes cannot provide more than 50% of the required exit capacity. Doors and windows "along the fire escape" must be protected with 3/4 hour fire resistance rated opening protection (621.0).

## UNIFORM BUILDING CODE - 1979

Fire escapes may be used as one means of egress in existing buildings under specified conditions a "ladder device" may be used in lieu of fire escape. There are no requirements for protection of adjacent openings (Appendix - Chapter 12, 1215(h))

## STANDARD BUILDING CODE - 1979

If "more adequate exit facilities cannot be provided," fire escapes can be used on existing buildings four stories or less in height. Fire escapes cannot provide more than 50% of the required exit capacity. All openings within 10 ft of fire escapes must be protected with approved opening protectives of at least 3/4 hour fire resistance (1116).

## NFPA LIFE SAFETY CODE - 1976

Fire escape stairs may be used only in existing buildings, but shall not constitute more than 50% of the required exit capacity. Openings within specified limits "shall be completely protected by approved fire doors or metal-frame wire glass windows" (5-2 9)

IDENTIFYING EXISTING CONDITIONS

- Determine the fire resistance rating of the protection of openings by reference to labels, the code in effect, current listings, or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

## 5.1

**Problem:** Fire resistance of the opening protection as determined above below that required.

**Solution:** Upgrade the fire resistance of the opening protection by repairing the existing construction or adding a new layer(s) of the fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies

- or -

**Solution:** Install local sprinklers over opening protection. Such sprinklers may be connected to the domestic water supply.

**Discussion:** The water spray on the exposed surface will compensate for the reduced fire resistance rating.

6. ARRANGEMENT OF EXITSSUMMARY OF CODE REQUIREMENTS AND INTENTCode Intent

The intent of providing exit remoteness, when two or more exits are required, is to minimize the probability that access to the

exits will be blocked by any one fire. The term "remote" is subjective and frequently a matter of interpretation.

Exits which appear to be remote from each other sometimes converge at a distant point. Stairways discharging into a common lobby or passageway are common examples. These exits are not truly remote because a blockage at the point of confluence renders both exits useless.

Code Analysis

Exits must be located so that they are discernible and have unobstructed access. They also must be arranged to lead directly to the street. When more than one exit is required, exits must be as remote from each other as practicable, and must be arranged to provide direct access in separate directions. Exits shall be arranged and constructed as to minimize any possibility that both may be blocked by any one fire or other emergency condition (BOCA: 602 2, 602 3; SBCC: 1103 1; NFPA: 5-5)

The Uniform Building Code has a prescriptive technique for determining exit remoteness. If two exits are required, they shall be placed a distance apart equal to not less than one half the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exits. An exception is made for exit enclosures interconnected by an approved corridor. Where three or more exits are required, they must be arranged a reasonable distance apart so that if one becomes blocked the others will be available (3302c)

IDENTIFYING EXISTING CONDITIONS

The arrangement of the acceptable exit components will be noted on the building plans or may be studied by a visual inspection of the physical structure.

PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

## 6 1

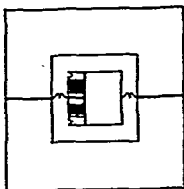
**Problem:** Required exits not remote from one another.

**Solution:** Separate the non-remote exits by a smoke barrier.

**Discussion:** With certain building configurations it is possible to isolate non-remote exits from one another. By constructing smoke barrier partitions, the requirement of direct access to the exits in separate directions can be met. Figure 1 illustrates this concept.

No matter where the fire may originate, any occupant can safely pass from one zone into another. This approach would not work for the building in Figure 2 because these exits, though separated into separate zones, cannot be reached by moving in separate directions: a fire blocking one exit would block the second

ACCEPTABLE



NOT ACCEPTABLE

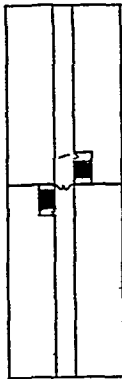


FIGURE 1

FIGURE 2

The smoke partitions could be constructed of wire glass, gypsum or other suitable materials. The doors must allow travel in either direction, and minimum corridor or hallway dimensions should be observed as closely as possible. Travel distance limitations may be violated by this approach. Slight excesses can be tolerated because the barrier will keep half the corridor free of smoke. Doors may remain in the open position provided they will close automatically upon the activation of a local smoke detector and the manual alarm, smoke detection or suppression systems, if present.

- or -

**Solution:** Provide an additional exit (e.g., stair, fire escape, fire balcony)

#### Discussion:

If separation of the exits as discussed above is not possible, then additional exits must be provided so that all occupants will have remote access to the required number of exits. The quality of the additional exits (e.g., enclosed stair v. ladder) will depend upon the use and occupancy of the building.

#### 7 TRAVEL DISTANCE

#### SUMMARY OF CODE REQUIREMENTS AND INTENT

The codes specify maximum travel distance to the nearest exit

#### Code Intent

The intent of requirements governing the maximum travel distance to an exit is to limit the time an occupant needs to reach an exit. When combined with the requirements for a minimum number of exits and for exit remoteness, the limitation on travel distance is intended to assure that even if one exit is blocked by the fire, any occupant will still be able to reach a location of refuge before the fire has spread in a manner as to prevent it. The actual time for escape implied by the maximum travel distance limitation is not explicitly stated.

#### Code Analysis

#### BASIC BUILDING CODE - 1978

Length of "exitway access travel" to "an approved exitway" (defined as "that portion of a means of egress which is separated from all other spaces of a building by construction or equipment as required in this code to provide a protected way of travel to the exitway discharge") is as follows:

Without Fire Suppression System	100 feet
With Fire Suppression System	150 feet

If the travel distance within a living unit is less than 50 ft., or 100 ft., if sprinklered, the distance of travel is measured from the corridor entrance (607.4).

#### UNIFORM BUILDING CODE - 1979

Maximum distance of travel "from any point to an exterior exit door, horizontal exit, exit passageway or an enclosed stairway" is as follows:

Without Automatic Sprinklers	150 feet
With Automatic Sprinklers	200 feet

These distances may be increased 100 ft. when the last 150 ft. is within a corridor that meets specific requirements as to width, height, obstruction, dead ends and openings 3302(d).

#### STANDARD BUILDING CODE - 1979

Maximum travel distance from any point to the "nearest exit" (defined as "that portion of a means of egress which is separated from the area of the building from which escape is to be made, by walls, floors . . . which provides the protected path . . . to the exterior . . .") is as follows:

Unsprinklered	150 feet
Sprinklered	200 feet

If the travel distance within a living unit is less than 50 feet, the distance of travel to an exit is measured from the corridor entrance (1103.1).

NFPA LIFE SAFETY CODE - 1976

The following are the requirements for travel distance (11-3 5, 11-3 6, 11-3 7, 11-3 8):

	To the "nearest exit" from an apartment		To a Corridor door from any room door
	entrance door	entrance door	
No Sprinklers or Detection	100 ft		50 ft
Automatic Detectors	150 ft		75 ft
Partial Sprinkler Protection	150 ft		50 ft
Total Sprinkler Protection	150 ft		100 ft

"Exit" is defined similarly to the definition of "exitway "

Summary

The codes have varying dimensional requirements for travel distance All allow an increase in exit travel distance if there are automatic sprinklers Only NFPA 101 allows an increase with automatic detection No other code recognizes automatic detection as a compliance alternate

The UBC differs from the other codes by specifying the four egress elements to which the travel distance is to be measured

IDENTIFYING EXISTING CONDITIONS

Determine the distance from the most remote point on every story of the building or from the most remote apartment entrance door (depending on the local code in effect) to the nearest acceptable exit element Measure the distance along the most direct natural path of travel

PROBLEMS AND PROPOSED SOLUTIONS

7 1 Problem: Measured travel distance exceeds maximum travel distance specified in applicable code

Three alternative solutions to this problem should be considered:

Solution: Travel distance up to 50 ft greater than the maximum should be acceptable if the path is broken up by an effective smoke barrier with automatic closing door, unless the building is equipped with an automatic suppression system and the allowable travel distance has already been increased The separation of non-remote exits (Section C: ARRANGEMENT OF EXITS) is a special application of this approach

The smoke barrier could be constructed of wire glass, gypsum or other suitable materials The doors must allow travel in either direction, and minimum corridor or hallway dimensions should be observed as closely as possible

Discussion: The added compartmentation offered by the smoke barrier reduces the chance that the entire travel path would be blocked by smoke after a given period of time, thereby compensating for the added escape time due to a longer travel distance

- or -

Solution: Travel distance up to 50 ft should be acceptable if all the apartments are equipped with individual smoke detectors and the building is equipped with an automatic or manual alarm, unless the building is equipped with an automatic suppression system and the allowable travel distance has already been increased

Discussion: The combination of individual unit smoke detectors and building alarm provides early detection of the fire and the opportunity to warn all building occupants, thereby compensating for the longer travel time implied by the longer travel distance Fire detectors are not acceptable for this solution, as they do not detect the fire as early as smoke detectors

- or -

Solution: Consider the addition of exterior stairs or of escape systems, such as fire escapes, ladders, fire balconies, etc , which are not normally accepted as exit elements for new construction, in order to reduce the travel distance

Discussion: In accepting this solution, an analysis should be made which takes into account both the capacities of anticipated occupants and local firefighting capabilities

8 DEAD-END TRAVEL

SUMMARY OF CODE REQUIREMENTS AND INTENT

Code Intent

Dead-end corridors of any length are undesirable features in buildings for two reasons. If a person has to use a dead-end corridor as part of the exit access (no choice of travel to exits), they could be trapped by a fire or smoke between them and the exits. The other reason for not having dead-ends is that people moving within the exit access can enter the dead-end, especially under smoky or low light conditions,

and become trapped or confused. Some controversy exists as to which concern the codes are intended to address, if not both. The answer is important because the design solutions differ.

The Basic, Uniform and Standard Building Codes use the term "dead-end" but do not define it. The Life Safety Code uses the phrase "maximum single path corridor length," which would indicate a concern for the availability of two remote exits. A close reading of the Uniform Code also favors this interpretation. The Basic Code appears to focus upon the individual in the corridor who may turn off onto a dead-end corridor or hallway. The Standard Code is equally susceptible to either interpretation.

#### Code Analysis

The Basic, Uniform and Standard Building Codes impose a 20 ft. maximum length for dead-ends (BOCA: 610 2;UBC:3304e; SBC: 1104 3). The Life Safety Code also imposes a maximum single path corridor length of 20 ft., except that lengths of 35 ft. are acceptable in existing or totally sprinklered buildings (11-3 5, 11-3 6, 11-3 7, 11-3 8).

#### IDENTIFYING EXISTING CONDITIONS

There are two approaches to the identification of paths of dead-end travel. The result may not be the same in both instances.

From the perspective of an occupant in a corridor moving towards a proper exit(s), a dead-end is any path of travel onto which the occupant could mistakenly turn that does not lead to an exit. The length of the dead-end is the maximum distance that the occupant could travel before realizing the mistake, i.e., to the end of the dead-end path.

From the perspective of an occupant moving from an individual dwelling unit into the corridor, a dead-end is any path of travel for which no choice of exits exists. This assumes that two or more exits are required. The length of the dead-end is the maximum distance that any occupant entering onto the corridor would have to travel until paths to remote exits become available. The dead-end corridor may extend beyond the most remote point of access from a dwelling unit to the corridor, e.g., to a window or janitor's closet. However, it is assumed that the occupants, familiar with their surroundings, would move towards, not away from, the nearest exit. Therefore, for this perspective only, the length of the dead-end does not include the length of the path that does not lead to an exit.

#### PROBLEMS OF NONCOMPLIANCE AND PROPOSED SOLUTIONS

8 1

Problem: Excessive lengths of dead-end travel.

Solution: Provide an additional exit to eliminate dead-end

Discussion: The most direct solution is to construct an exit at or near the end of the dead-end path. A person turning off the main corridor would still have access to an exit; a person leaving an individual dwelling unit would have a choice of two remote exits. This exit must be directly accessible from the corridor or hallway. Higher quality exit components such as enclosed or open stairs are preferred. Fire escapes or balconies could be accepted depending upon the nature and characteristics of the occupant loading, fire department capabilities, building height, etc.

- or -

Solution: Construct a physical partition limiting the path of dead-end travel.

Discussion: By constructing a physical partition, a person who mistakenly turns off the proper path onto a dead-end would be alerted to his mistake. The distance from the proper path to the partition must be within the limits for dead-ends specified within the respective codes, but should be less than that allowed whenever practicable. The partition need not have any fire resistance rating. Any doors may be kept in the open position provided they shall close automatically upon the activation of a local smoke detector and the manual alarm, detection and suppression systems, if the latter are otherwise required. The partition shall be clearly marked to indicate the path is NOT AN EXIT.

This solution does not provide two remote exits for those occupants whose dwelling units access onto the dead-end path. While the codes are not clear on this issue, the following analysis has been used. The portion of the building served by an excessive dead-end path is analyzed as though it were a separate building. Then, the number of exits required for this portion is determined. If only one exit is required, then the building is considered to be in compliance because the dead-end path still provides one path of escape. The Uniform Building Code provides that "every building or USABLE PORTION THEREOF shall have at least one exit." (3302 (a)) (emphasis added). Two exits are required only when certain limits are exceeded.

Travel distances for the dwelling units in this portion of the building are computed as follows:

The regular travel distance limitations outlined above must be met. For example, the travel distance from the door of the most remote dwelling unit in that portion of the building to the nearest exit may not exceed 100 ft. in a non-sprinklered building constructed under the Basic Building Code.

Some codes impose a special limitation on travel distance to an exit when only one exit is required. The distance from the door of the most remote dwelling unit to the point where two remote

of one hour in buildings of three stories or less, and of two hours in all other buildings. Doors in such separations must be rated at 3/4 hour and 1 1/2 hours, respectively. Other openings must be protected and limited in area. (619.1.1)

#### UNIFORM BUILDING CODE - 1979

Corridor is not specifically defined

Walls of corridors and interior sides of exterior exit balconies serving an occupant load of 30 or more (i.e., 6000 sq ft) must be of not less than one-hour fire resistive construction. Ceilings of corridors must be at least that required for a one-hour fire resistive floor/ceiling assembly

Doors opening onto corridors serving 30 or more occupants must be "tight-fitting smoke and draft control" self-closing or automatic closing door assemblies with a 20-minute fire protection rating. Other openings in corridor walls must be fixed and protected by 1/4" wired glass in steel frames and may not exceed 25% of the wall area separating any room and the corridor. (3304)

Travel distance in a corridor so enclosed may be increased (see Section D: TRAVEL DISTANCE)

#### STANDARD BUILDING CODE - 1979

Corridors are not specifically defined

All exit access corridors serving over 30 occupants (i.e., 6000 sq ft) must have a minimum fire resistance rating of one hour. An exterior balcony may serve as a corridor (exit access) if it complies with all the requirements of a corridor. Doors opening onto corridors serving over 30 occupants must be self-closing, tight fitting, smoke and draft assemblies with a 20-minute fire protection rating. (702.3, Table 700 and Notes, 1108)

#### NFPA LIFE SAFETY CODE - 1976

Corridors are not specifically defined.

Walls enclosing exit access corridors must have a fire resistance rating of 1-hour. This rating may be reduced to 3/4 hour and 1/2 hour for buildings with automatic detectors and automatic sprinklers, respectively; 1/2 hour fire resistance is permitted in existing buildings

Doors opening onto such corridors must have a 20-minute fire protection rating, except that previously approved 1-3/4 inch rated bonded wood core doors and frames may remain in use. (11-3.5.3.1.3 and Exception No. 2, 11-3 6.3.1.3, 11-3 7.3.1.3, 11-3.8.3.1.2)

exits become available must not exceed this limit. The Uniform Building Code has no such limitation. The allowable distances in the Basic and Standard Building Codes are 50 ft. and 30 ft., respectively. Though the Life Safety Code allows dead-ends of 35 ft. in existing buildings, the maximum travel distance when a single exit allowable is only 20 feet

Should the analysis reveal that two exits are required for this portion of the building, then an additional exit must be provided

#### 9 CORRIDORS AND EXTERIOR EXIT BALCONIES (SEPARATION AND FIRE RESISTANCE)

##### SUMMARY OF CODE REQUIREMENTS AND INTENT

Corridors in R-occupancies are the common and public spaces through which occupants travel from their apartments to an exit element. It is the length of corridors that is usually controlled by code provisions governing travel distance

The codes establish certain requirements for the separation of corridors from other building spaces. See Guideline G for dimensional requirements placed on corridors

##### Code Intent

Fire resistance requirements for corridor enclosures and doors are intended to maintain the integrity of the corridor and prevent flames and smoke from blocking the exit route. This will enable the occupants to safely travel through the corridors to the exits

##### Code Analysis

#### BASIC BUILDING CODE - 1978

A corridor is defined as "a hallway, passageway or other compartmented space providing the occupants with access to the required exitway of the building or floor area" (201.3)

Corridors serving 30 or less occupants (i.e., 6000 sq ft or less) may have a zero fire resistance rating. All other corridors must have a fire resistance rating of one hour. Corridor walls must extend from the floor to the ceiling (need not extend through space above suspended ceiling). Doors opening onto corridors serving over 30 occupants must be self-closing or automatic closing, with a 20-minute fire protection rating (610.4)

Open porches or balconies leading to exterior exitway stairs must be separated on their interior side by a fire resistance rating

Discussion: 30-minute corridor walls with an automatic suppression system are acceptable under the Life Safety Code. The automatic suppression system will delay or prevent the fire's penetration into the corridor, thereby compensating for its reduced fire resistance

9 2

Problem: The fire protection rating of corridor doors is lower than that required by the code in effect

Solution: Unrated corridor doors should be accepted if they are individually equipped with a local sprinkler which will automatically spray the door in case of a fire on the room side of the corridor door. Such a sprinkler may be connected to the domestic water supply system

Discussion: The door's reduced temperature rise resulting from the local sprinkler is roughly equivalent to the delayed temperature rise implied by the door rating

9.3

Problem: The corridor walls have other openings which are inadequately protected as required by the code in effect

Solution: All transoms should be closed with plasterboard or fixed wired glass. Other openings should be improved by repairing the existing construction or adding a new layer(s) of fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Rating of Archaic Materials and Assemblies.

#### 10 EXIT CAPACITY/WIDTHS

#### SUMMARY OF CODE REQUIREMENTS AND INTENT

The codes regulate the capacity of the means of egress by relating required widths of the various elements of the means of egress to the occupant load they serve, and by establishing minimum widths for each egress element.

#### Code Intent

It is the intent of the codes to provide an exit capacity large enough to move the total expected occupant load into the exits before the access to exits becomes untenable.

Safe exiting time is implied in the codes only, and cannot yet be validly calculated. It was, however, discussed when the values for exit capacity were established by the NFPA Life Safety Code committee. Doors and other level egress components are considered to have a rated capacity of 60 persons per minute per 22 inch unit of exit width and stairs are rated at 45 persons per minute per unit of exit width. This is considered a standard 4:3 ratio for pedestrian movement. These values are based on studies by

#### Summary

The three model codes require enclosures of 1-hour for walls and 20 minutes for doors for corridors serving over 30 occupants. The Life Safety Code requires a similar corridor enclosure, irrespective of occupant loading, but allows reduction of the separation requirement as a function of automatic detection and extinguishment. Only the Life Safety Code accepts lower ratings for existing buildings

The three model codes disagree on the treatment of exterior exit balconies. The Uniform and Standard Codes treat them as corridors, while the Basic Code seems to be stricter, treating them as parts of "exitways" rather than "exitway access"

#### IDENTIFYING EXISTING CONDITIONS

Determine the occupant load served by the corridor in question. If it is in excess of the code specified criteria of 30 occupants (or 6000 sq ft. of area served), proceed with the following:

- Determine the fire resistance rating of the corridor wall assembly by reference to the code in effect, current listings or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies.
- Determine the fire resistance rating of the corridor doors by reference to labels, the code in effect, current listings, or Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies.
- Identify all other openings in corridor walls, such as transoms, and determine their area and the design of their closing devices, if any.

#### PROBLEMS AND PROPOSED SOLUTIONS

9 1

Problem: The fire resistance rating of the corridor enclosure, as determined above, is below that required by the code in effect.

Solution: If the corridor wall consists of wood lath and plaster, it should be accepted as having adequate fire resistance, or the fire resistance of the corridor enclosure should be improved by repairing the existing construction or adding a new layer(s) of fire rated materials. See Volume 3 of the Rehabilitation Guidelines: Fire Ratings of Archaic Materials and Assemblies.

- or -

Solution: A corridor enclosure of 30 minutes fire resistance should be accepted if the building is equipped with a fully automatic fire suppression system

UNIFORM BUILDING CODE - 1979

The total width of exits (in feet) cannot be less than the total occupant load of the building divided by 50, divided about equally between the separate exits. The total exit width for any story is based on the occupant load of that story, plus a percentage of the occupant load of other floors which exit through the story (under consideration: 50 percent of the first adjacent story above and below, if applicable); and 25 percent of the story immediately adjacent to the first adjacent story (3302(b))

Minimum width:

- Corridors  
Exit Balconies 44 inches for occupant load of 10 or more (36 inches within dwelling units (3304(b)))
- Doors 32 inches
- Stairways 44 inches for occupant load over 50; 6 inches for load of 50 or less (30 inches for private stairway (3305(b)))
- Exit Courts  
Fire Escape 44 inches or tributary occupant load 29 inches--clear access opening; 18 inches--stairs

STANDARD BUILDING CODE - 1979

Capacity is based on a unit of egress width of 22 inches with 12 inches or more considered as 1/2 unit in addition to one or more units. (1105.2)

Exit capacity (number of persons) per unit of egress width (1105 3):

- Stairs 75
- Level Travel (Doors, Ramps, Corridors) 100

The minimum width:

- Any means of egress  
Exitway access, Corridors, Ramps 36 inches (1105 3(e))  
44 inches (36 inches in 1- and 2-family dwellings) (1105 3(g))
- Stair 44 inches (36 inches for 50 or less occupants (1115 6(c)))
- Courts, Passageways 36 inches or aggregate capacity of all tributary means of egress (1112(c)); 44 inches or 3/4 of aggregate tributary stair and door width (1128.2)
- Door 32 inches (1117.1(b))
- Fire Escape 22 inches--stairs (1116(d))

the National Bureau of Standards and the London Transport Board\* If stairs are sized to a capacity of 75 people per unit, a time of 100 seconds is implied (75 people/unit divided by 45 people/minute-unit). The results are the same for corridor travel

The 22 inch unit of exit width, which is used in all but the Uniform Building Code, represents the median width of the human body at shoulder height. Its origin is said to be in experience gained by the military

The UBC requirements actually imply an exit capacity of 100 people per 24 inches of exit width. Using the 22 inch exit unit system this results in about 92 people per exit unit

BASIC BUILDING CODE - 1978

Capacity is based on a unit of egress width of 22 inches with 12 inches or more considered as 1/2 unit in addition to one or more units (608 1), except that a 40-inch door is considered to have two units of egress width.

Exit capacity (number of occupants) per unit of egress width (608 2):

	Without Fire Suppression System	With Fire Suppression System
Stairways, Doors, Ramps, Corridors	75	113
	100	150

Minimum width:

- Corridors, Ramps 44 inches (36 inches in 1- and 2-family dwellings)
- Door 32 inches (28 inches in 1- and 2-family dwellings)
- Stairway 44 inches (36 inches for occupancy load 50 or less)
- Fire Escape  
Passageway 22 inches  
44 inches or 3/4 of aggregate widths of all stairways and doorways leading thereto, whichever is greater

\*London Transport Board, Second Report of the Operational Research Team on the Capacity of Footways Research Report No. 95 (London: London Transport Board, 1958)

National Bureau of Standards, Design and Construction of Building Exits, Pub. No. M151 (Washington, D.C., NBS, 1935).



## NFPA LIFE SAFETY CODE - 1976

Capacity is based on a unit of exit width of 22 inches with 12 inches or more considered as 1/2 unit in addition to one or more units (5-3.2)

Exit capacity (number of persons) per unit of exit width (11-1.6):

Level egress, Class A Ramps, Doors	100 People
Stairways and other types of exits	75 People (See Table 5-2.9.4 for fire escapes)

## Minimum width:

Any exit access, Doors	28 inches
Stairs	44 inches for occupant load of 50 or more;
	36 inches for occupant load of less than 50 (5-2.2.1.2)
Fire Escapes	22 inches (18 inches for 10 or less occupants (5-2.9.4)
Ramps	44 inches for Class A (5-2.6.1.2) 30 inches for Class B (5-2.6.1.2)
Exit Passageway	Aggregate of tributary capacities (5-2.9.3)
Street Floor	Aggregate capacity of street floor and 3/4 of exit units of stairs from other floors discharging through street floor (11-2.2.3.1)

Summary

The Uniform Code differs significantly from the other three codes in determining the required exit capacity. All other use the 22-inch exit unit. The Basic Code allows an increase in the capacity per unit of egress width if the building is sprinklered.

Minimum widths are generally similar for all the codes, except that the Life Safety Code accepts a minimum corridor width of 28 inches, while the other codes require 44 inches in apartment buildings.

IDENTIFYING EXISTING CONDITIONS

- Determine the number of exit units or feet of exit (depending on the code in effect) for each exit element identified in Section A: NUMBER OF EXITS above, for each access corridor or hallway leading from any apartment to an exit, and for each grade level egress. Base the computation on the number of

occupants served by the element in question, in accordance with the code in effect.

- Determine the required width of each egress element, corridor or hallway
- Determine or measure the actual width of each egress element, corridor or hallway, and grade level egress identified above, by field measurement or scaling dimensioned plans

PROBLEMS AND PROPOSED SOLUTIONS

## 10.1

Problem: The width of a particular element is less than the minimum width specified in the code in effect

Solution: If the element is wide enough to provide the required exit capacity and is equal to or greater than some minimal dimension, though, lower than that specified in the code, it should be accepted. This new minimum should be over 22 inches, and 28 inches should be considered, as specified for some elements by the Life Safety Code.

Discussion: In most cases, considerations of functionality (movement of furniture, etc), appearance, and marketability will result in minimum dimensions greater than those suggested above, and may, in fact, have been the reason for the higher minimums specified in current codes. For egress only, however, units of exit width should be adequate. A higher minimum than 22 inches is suggested, since that dimension represents the median width of the human body at shoulder height

11. CONSTRUCTION DETAILS AND SPECIFICATIONSSUMMARY OF CODE REQUIREMENTS AND INTENTCode Intent

The codes set out many other requirements for egress components. Typical areas include: allowable materials, handrails, tread and riser design, landings, platforms, guards, and lighting. The intent of these provisions is to ensure a quality design that will promote safe and easy passability. The individual code requirements have not been set out because they are too numerous and highly specific

IDENTIFYING EXISTING CONDITIONS

The relevant features should be noted on the building plans or may be studied by a visual inspection of the physical structure.

PROBLEMS OF NON-COMPLIANCE AND PROPOSED SOLUTIONS

Because these provisions tend to be highly specific and detailed, existing egress components will often not be in compliance. However, the impact or effect of the deficiency must be realistically

## CHAPTER 2

ELECTRICAL GUIDELINE FOR RESIDENTIAL REHABILITATIONINTRODUCTION

This guideline was developed to facilitate the rehabilitation of residential buildings. It also may be used in the rehabilitation of other, similar occupancies.

The guideline does not address all topics associated with electrical codes, but only those select problem areas most identified with rehabilitation projects. In general, the guideline addresses three subjects:

- establishing standards for electrical rehabilitation;
- inspecting existing electrical installations; and
- problems and solutions for hazardous conditions, adequate load-carrying capacity, and additions, alterations and extensions to existing electrical installations.

It has been long recognized that electrical codes pose special problems for rehabilitation projects. Some jurisdictions have adopted special electrical codes to be used for rehabilitation. For example, the City of Detroit's electrical code for rehabilitation is shown in Appendix 11 to Volume 1 of the Rehabilitation Guidelines. Some of the model electrical codes give the code enforcement authority the responsibility for making interpretations of the rules, for granting exceptions to the rules, and for waiving specific requirements of the code. An example of this "flexible" approach is provided by the National Electrical Code (NEC):

- "Section 90-2. (c) Special Permission. The authority having jurisdiction for enforcing this Code may grant exception for the installation of conductors and equipment, not under the exclusive control of the electric utilities and used to connect the electric utility supply system to the service entrance conductors of the premises served, provided such installations are outside a building or terminate immediately inside a building wall."
- "Section 90-4. Enforcement. This Code is intended to be suitable for mandatory application by governmental bodies exercising legal jurisdiction over electrical installations and for use by insurance inspectors. The authority having jurisdiction of enforcement of the Code will have the responsibility of making interpretations of the rules, for deciding upon the approval of equipment and materials, and for granting the special permission contemplated in a number of the rules."
- "In industrial establishments and research and testing facilities, the authority having jurisdiction may waive specific requirements in this Code or permit alternate methods, where it is assumed that equivalent objectives can be achieved by establishing and maintaining effective safety and maintenance procedures."

appraised in light of the number of occupants that will rely upon the egress component in question and their ability to use the egress component as it presently exists. If the numbers are small and the people capable, then minor deviations should be tolerated.

Of the many potential problems, there are three that appear the most common and raise the greatest concern.

## 11.1

**Problem:** Existing winding and spiral stairs not permitted under the code in use.

**Solution:** Allow their continued use if occupants are mobile, agile, and capable of rapid movement under emergency conditions; upgrade stairs in all other respects.

**Discussion:** Winding or spiral stairs are not favored because the uneven tread pattern and changes in direction can make passage difficult. The use of these stairs could be continued if the occupants can be expected to use them safely (i.e., healthy adults) and the stairs complied in other respects (e.g., not excessively steep or narrow). Lighting should be improved if necessary; emergency lighting, handrails, etc. should be improved or provided.

## 11.2

**Problem:** Non-conforming tread and riser dimensions.

**Solution:** Accept stairs having a minimum run of nine inches and maximum rise of eight inches; upgrade stairs in all other respects.

**Discussion:** Some codes use the mathematical formula that the sum of (2 x rise) + run must be between 24-25 inches. Such a formula may arbitrarily eliminate stairs which are otherwise quite passable. Stairs exceeding even the limits stated above may be considered for acceptance if the step pattern does not change and the occupancy is such that those who may need the stair in an emergency are familiar with the particular design of the steps. As in 3.1 above, the stairs should be otherwise of high quality and passable. Lighting should be improved if necessary; emergency lighting, handrails, etc., should be improved or provided.

## 11.3

**Problem:** Minimum ceiling heights for stairs, passageways, etc.

**Solution:** Allow the continued use if passable by the occupants; upgrade in all other respects.

**Discussion:** Low ceiling heights make an exit not only physically difficult to traverse, but can create an impression of closeness or of a closed space that may create a sense of apprehension, particularly if the path is also narrow or somewhat lengthy. If the number of occupants is low so that crowding would not be expected and the distance is not excessive, discretion should be exercised. The familiarity of the occupants with this egress component should also be considered. Lighting, particularly emergency lighting, is very important. A regular pattern of markings showing the direction of the ultimate exit to the outside can also be reassuring. Other aspects of the egress component should be improved or provided if missing.

- "Section 90-5. Formal Interpretations. To promote uniformity of interpretation and application of the provisions of this Code, the National Electrical Code Committee has established interpretation procedures."

#### 1. ESTABLISHING STANDARDS FOR ELECTRICAL REHABILITATION

A community or jurisdiction that may wish to use these Guidelines may also have a need to set standards for rehabilitating electrical installations. A process for doing this is discussed in detail in the Guideline for Setting and Adopting Standards for Building Rehabilitation contained in Volume I of the Rehabilitation Guidelines.

There are a number of sources of information which may be used as a basis for setting electrical rehabilitation standards. Current electrical codes, such as the NEC, are one such source of rehabilitation standards information. Although these codes principally regulate new construction, and therefore do not adequately address the problems of rehabilitating existing buildings, certain of the provisions of electrical codes for new construction are applicable. For example, those regulating grounding, connections and service ratings can be adopted as electrical rehabilitation standards when a community or jurisdiction wishes to maintain a level of safety in rehabilitated buildings which is the same as that for new construction.

In addition, the "alternative materials and methods" provision of new construction codes provides a concept by which some solutions to problems of electrical rehabilitation can be developed that are different from those prescribed by the current code, but provide an equivalent level of safety.

Property maintenance codes, fire prevention codes, and hazard abatement codes could be another basis for setting electrical rehabilitation standards. As the following excerpts from some of these codes illustrate, they do not contain precise enough information to be useful in setting specific standards. They are useful, however, as a general basis for establishing minimum levels of performance and levels of performance less than those required by new construction codes.

The BOCA Basic Property Maintenance Code states in Section H-602.0, ELECTRICAL FACILITIES:

*"H-602.1 Outlets required: Where there is electric service available to a structure, every habitable room of a dwelling*

*unit, and every guest room, shall contain at least two (2) separate and remote outlets, one (1) of which may be a ceiling or wall-type electric light fixture. In a kitchen three (3) separate and remote wall-type electric convenience outlets or two (2) such convenience outlets and one (1) ceiling or wall-type electric light fixture shall be provided. Every public hall, water closet compartment, bathroom, laundry room or furnace room shall contain at least one (1) electric light fixture. In addition to the electric light fixture in every bathroom and laundry room, there shall be provided at least one (1) electric outlet.*

*"H-602.2 Installation: All electrical equipment, wiring, and appliances shall be installed and maintained in a safe manner in accordance with all applicable laws. All electrical equipment shall be of an approved type."*

*"H-602.3 Defective system: Where it is found, in the opinion of the building official, that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of inadequate service, improper fusing, insufficient outlets, improper wiring or installation, deterioration or damage, or for similar reasons, he shall require the defects to be corrected to eliminate the hazard."*

Similarly, the BOCA Basic Fire Prevention Code states in SECTION F-105.0, ORDERS TO ELIMINATE DANGEROUS OR HAZARDOUS CONDITIONS, F-105.1 General:

*"Whenever the fire official or his designated representative shall find in any structure or upon any premises dangerous or hazardous conditions or materials as follows, he shall order such dangerous conditions or materials to be removed or remedied in accordance with the provisions of this code: \**

*7. Hazardous conditions arising from defective or improperly used or installed electrical wiring, equipment or appliances;"*

Past electrical codes for new construction are an especially important source of information for electrical rehabilitation standards setting. The levels of safety required by past electrical codes are different from, and may be lower than, the current electrical codes. Past codes, however, are most useful in determining after an on-site inspection whether an existing building currently meets the code under which it was built.

Finally, laws and regulations affecting electrical installations which apply retroactively to existing buildings are by definition mandatory standards for electrical rehabilitation.

All of the above, except retroactive laws and regulations which usually are community or jurisdiction specific, have been addressed in the electrical rehabilitation problems and solutions that follow.

## 2. INSPECTION

In the process of submitting proposed electrical rehabilitation work to a building department, it will be necessary to inspect existing electrical installations when the building official needs more information about the work to be done (see Guideline for Municipal Approval of Building Rehabilitation). Inspections are also an essential part of enforcing property maintenance, fire prevention and hazard abatement codes.

This part of the guideline contains a procedure for conducting inspections of existing electrical installations to determine their physical condition, functional condition and load-carrying capacity.

Even if electrical construction drawings and/or specifications of an existing building were available, they would not be useful in determining the present physical and functional condition of the electrical installation. These conditions can only be determined from an on-site inspection. However, if electrical construction drawings accurately and completely represented the present electrical installation in an existing building, they could be used in conjunction with the current electrical code to calculate the installation's load carrying capacity.

It is recommended that inspections be made by qualified electrical inspectors or licensed electricians.

### 2.1 Physical Condition

First, determine the physical condition of the existing electrical installation. Inspect the physical condition of parts of the installation which are normally exposed to view.

Next turn off the power, and remove the covers and open the doors of switch boards, panelboards, cabinets and boxes. Then, inspect the physical condition of the exposed, internal components and wiring, as well as the surrounding building construction.

If the condition of the conductor insulation can't be determined by inspection, have an insulation resistance test made. Similarly, if the condition of receptacles can't be determined by inspection, test them by inserting a standard type flexible cord attachment plug.

Detaching fixed utilization equipment such as lighting fixtures, lampholders and appliances (built-in electrical space heaters, for example) to inspect the physical condition of their exposed, internal components and wiring, and the surrounding building construction should also be done. But in older buildings, this may contribute to, or actually cause, defects in equipment, appliances or wiring. Therefore, consider carrying out this type of inspection only when:

- 1) such wiring, equipment or appliance is part of a rehabilitation plan;
- 2) problems are evident from the first inspection of parts which are normally exposed to view; or
- 3) problems of function are evident from inspection.

### 2.2 Functional Condition

Second, if the physical condition of the installation seems safe enough, determine the functional condition. Turn the power on. Next, with the covers removed and the doors open on equipment to expose circuit breakers, switches, receptacles and other devices, and conductor splices and connections, do the following:

- 1) operate circuit breakers, switches, other operable devices and fixed utilization equipment;
- 2) observe the function of operable devices; and
- 3) observe the operation, and assess the operating temperatures of fixed utilization equipment.

Make inspections to determine the physical and functional conditions of existing electrical installations in accordance with the current code, such as NEC Section 110-3(a). Whenever possible as an aid in assessing an installation's condition, secure information from owners, tenants or building department records about past operating problems that cannot be easily found by inspection, such as the frequency of fuses blowing or short circuits.

### 2.3 Load Carrying Capacity

Third, determine the load carrying capacity of the existing electrical installation by calculation in accordance with the current code.

### 3. PROBLEMS AND SOLUTIONS

#### 3.1

Problem. The existing electrical installation has any one or combination of the following conditions which are contrary to the intent of property maintenance, fire prevention and hazard abatement codes:

- 1) equipment or wiring is missing, broken, disconnected, loosely connected, unsupported, not securely fastened in place, corroded, burnt, cracked, split, or has evidence of physical damage or misuse other than that affecting appearance;
- 2) equipment is dirty or contains debris;
- 3) wiring is frayed;
- 4) labeled or listed equipment or wiring is not installed in accordance with any labeling or listing instructions;
- 5) circuit breaker, switch, receptacle other device, fixed utilization equipment or wiring is not compatible with the phase, voltage, amperage or type characteristics of the electricity in use;
- 6) circuit breaker, switch or other operable device has visible evidence of arcing;
- 7) receptacle contact devices are not firmly in contact with the contact devices of a standard type flexible cord attachment plug when the plug is inserted into the receptacle;
- 8) neutral is not grounded at the main service entrance equipment location by a properly connected grounding electrode conductor;
- 9) polarity is reversed in wiring connections to receptacle outlets;
- 10) fixed utilization equipment, such as a lighting fixture, lampholder or appliance, operates intermittently;
- 11) building construction adjacent to wiring, equipment or appliance is burnt;
- 12) service, feeder or branch circuit conductors have evidence of intermittent operation, impaired operation, or cannot otherwise be determined as acceptable when the installation is energized;
- 13) flexible cord is used as a permanent wiring method, or

- 15) branch circuit, feeder, switchboard, panelboard or distribution board service rating is inadequate for the load calculated in accordance with the current code.

Solution. Have all such conditions corrected.

Discussion. These conditions are hazards of varying degrees. They are problems associated with defective or improperly used or improperly installed wiring, equipment or appliances. If any one or combination of these conditions is extensive, severe, or occurs frequently in an installation, a building official may judge that an imminent hazard exists. In that case, the hazard must be corrected immediately or the installation disconnected.

If flexible cord is used as a permanent wiring method (condition 14), this may indicate the need for more receptacle outlets (see Problem and Solution 3.8).

#### 3.2

Problem. Circuit breaker, switch, receptacle, other device, fixed utilization equipment, raceway, connector, terminal, splicing device or other fitting is not compatible with the type of conductor used, or the electrical connection doesn't meet the current code, such as NEC Section 110-14.

Solution. Have all such connections of conductors to terminal parts, conductor splices, or conductors joined with splicing devices corrected to meet the current code, such as NEC Section 110-14(a) and 110-14(b); and have all incompatible conductors, devices or equipment corrected to meet the current code, such as NEC Section 110-14, by:

- 1) replacing existing conductors with new conductors which are compatible with the existing devices or equipment, or
- 2) replacing existing devices or equipment with new devices or equipment which are compatible with the existing conductors; or
- 3) installing an insulated conductor "pigtail" compatible with the existing device or equipment.

Discussion. Improper connections and splices, and incompatible conductors, devices and equipment can be hazardous. They are problems associated with defective or improperly installed wiring or equipment. These conditions may, depending upon the number and severity of the problems, be judged an imminent hazard by a building official. If that is the case, the hazard must be corrected immediately or the installation disconnected.

## 3.3

**Problem.** An existing appliance branch circuit doesn't have an equipment grounding conductor which is required by the current code.

**Solution.** Permit ungrounded, non-conforming, existing appliance branch circuits to remain, provided:

- 1) alternative grounding is provided for appliances by the connection of an equipment grounding conductor to a grounded, metallic, cold water pipe;
- 2) service equipment, service raceways, service grounded conductors, switchboards and panelboards are grounded in accordance with the current code, such as NEC Article 250, or alternative grounding is provided by the connection of an equipment grounding conductor to a grounded, metallic, cold water pipe; and
- 3) branch circuit equipment grounding conductors are in accordance with the current code, such as NEC Article 250.

**Discussion.** This alternative method of grounding existing appliance branch circuits is not the method usually required by code, but it will provide an equivalent level of safety. And, since this alternative method is relatively simple to install, it is an aid to rehabilitation. But, it is important to make sure in such installations that equipment grounding conductors are connected to cold water pipes which are metal and which are grounded. Similarly, make certain that equipment grounding conductors are never connected to metallic, gas supply pipes; this would pose a serious hazard.

## 3.4

**Problem.** The size of the service is inadequate for the load as calculated according to the current code.

**Solution.** Re-calculate the size of the service for the actual connected (installed) load and the loads for circuits calculated according to the current code, provided:

- 1) the service disconnecting means has a rating not less than the actual connected load;
- 2) loads established for branch circuits and feeders are determined with the diversities and calculation methods defined in the current code; and
- 3) all other aspects of the service meet the current code, such as NEC Table 310-16 to 19 including the notes to these Tables, Article 220, Article 240 and Article 230 except Section 230-79(c) for single-family dwellings and Section 230-79(d) for all other occupancies.

**Discussion.** In determining the actual connected load, include both existing loads which won't be affected by rehabilitation and new loads which are planned as a part of rehabilitation. The probability of the use of room air conditioners should also be considered. By using energy sources other than electricity, electrical loads can be reduced. Therefore, consider the use of other energy sources for cooking, heating and domestic hot water. Determining existing loads and new loads planned as a part of rehabilitation requires judgement. If there is any indication that loads will increase in the future, this should be taken into consideration. Using the actual installed load is a means to control otherwise unnecessary rehabilitation, while maintaining the standards of safety required by the current code.

## 3.5

**Problem.** In one and two family dwellings, the existing service rating must be increased by the addition of a second service entrance and a second service disconnect in order to meet the current code or these Guidelines, but space is limited or there are other, similar constraints.

**Solution.** Add the second service entrance and the second service disconnect at a location different from the existing service disconnect, provided:

- 1) both disconnects meet the current code, such as NEC Section 230-72(a);
- 2) permanent warning signs are erected at each location indicating separate service disconnects; and
- 3) the combined rating of the separate service disconnects is not less than that required by the current code or recommended by other sections of these Guidelines for a single service disconnect.

**Discussion.** These recommendations are intended to eliminate the potential hazard of installing a single, new, service entrance in an inappropriate location, and are a means to control otherwise unnecessary rehabilitation. Any hazard associated with a "split" service is eliminated by the suggested provisions of the recommendations, and the restriction of split service to residences of no more than two families. A split service installed as recommended is an alternative to the current code which should provide an equivalent level of safety.

## 3.6

**Problem.** An existing general purpose branch circuit or feeder is without an equipment grounding conductor, and that is contrary to the current code.

**Solution.** Allow un-grounded, non-conforming, existing, general purpose branch circuits to remain, provided:

- 1) living rooms or living/dining rooms have a minimum of one duplex receptacle outlet on each wall, and the outlets are uniformly spaced relative to room area;
- 2) other habitable rooms have a minimum of two duplex receptacle outlets uniformly spaced relative to room area;
- 3) bathrooms have a minimum of one duplex receptacle adjacent to the basin location, and all bathroom, garage and outdoor receptacles have ground fault circuit interrupter protection in accordance with the current code, such as NEC Section 210-8(a);
- 4) kitchens have a minimum of one, separate, small appliance circuit supplying grounding type duplex electrical outlets;
- 5) each stair or each stair section has adequate illumination controlled by wall switches located conveniently for ease of use where it is unnecessary to use darkened stairs for their operation, and all stairs to finished rooms have multiple switch control from the head and the foot of the stair;
- 6) new small appliance circuits are a minimum of 20 ampere capacity; and
- 7) lighting outlets are provided and installed in accordance with the current code, such as NEC Section 210-26(a).

### 3.9

**Problem.** The configuration of access space to, and working space around, electric equipment to permit ready and safe operation and maintenance of the equipment is different from that required by the current code, such as NEC Section 110-16.

**Solution.** Permit such existing space to remain when the intent of the current code can be met.

**Discussion.** Equipment accessibility and working space are essential to safety. If the existing space meets the requirements of the past code under which it was constructed, if additional equipment and/or new equipment of a higher service rating is not to be installed, and if the installation has a history of safe operation, maintenance and repair, these considerations may be a basis for permitting the existing space to remain unchanged.

- 1) no circuit or feeder is overloaded; and
- 2) no general purpose branch circuit serves loads required by the current code to be served by small appliance branch circuits.

**Discussion.** An existing general purpose branch circuit without an equipment ground which is inspected and found to still be in acceptable physical and functional condition, and is not overloaded, can be considered to have a history of operating safely. Therefore, its safe operation can be expected to continue, and it can be allowed to remain. It is important that such a circuit doesn't serve as an appliance branch circuit, and that in calculating loads on it, both existing loads which won't be affected by rehabilitation, and new loads which are a result of rehabilitation be used.

### 3.7

**Problem.** An existing general purpose branch circuit is to be extended, and it conforms to the current code, except it doesn't have an equipment grounding conductor.

**Solution.** Permit un-grounded, non-conforming, general purpose branch circuits to be extended to all locations except kitchens, baths, basements and garages.

**Discussion.** Kitchens, baths, basements and garages represent a particular hazard as compared to other locations. That hazard is reduced by equipment grounding conductors installed according to the current code or these Guidelines.

### 3.8

**Problem.** The number of existing receptacle outlets is less than required by the current code.

**Solution.** Permit fewer receptacle outlets than required by the current code.

**Discussion.** The number and location of receptacle outlets required for the safe and convenient use (as this bears on safety) of rooms and spaces varies and can best be determined by judgement by communities and jurisdictions individually. Such factors as number of occupants, floor area, room configuration, and window and door locations all affect determining that number and location of receptacle outlets which meets the intent of the current code.

The following is one example of such a reduction in the number of required receptacle outlets:

## CHAPTER 3

USE

This guideline is arranged as follows:

- Part 1, determining the condition of the existing system
- Part 2, determining the capacity of the existing system
- Part 3, relocating fixtures
- Part 4 and Appendix, adding new fixtures to existing DWV systems, extending existing DWV systems, and installing new DWV systems in existing buildings
- Part 5, through-the-wall venting for special conditions

INTRODUCTION

Plumbing drainage, waste, and vent (DWV) requirements in building and plumbing codes are often viewed as major rehabilitation problems. Requirements to install new DWV systems in existing buildings which fully comply with current code provisions often lead to extensive additional structural and finish work. There are several aspects to this problem:

- existing vent systems may not comply with code provisions for pipe sizing, connections, use of wet venting, and vent location, although they provide adequate health and safety as installed and used
- the installation of new vents and lines, even for new fixtures, may be constrained by space available and/or the existing configuration of piping
- economic DWV materials, such as plastic pipe, may be precluded by material restrictions in the code, or by requirements related to mixtures of materials or their methods of connection
- the cost-effective use of existing DWV systems in rehabilitation projects requires judgement and flexibility by the municipal building department to a greater extent and in a different manner than in new construction

This guideline, based on accepted drainage and hydraulic engineering concepts, provides alternate solutions to typical DWV problems faced in building rehabilitation.

PLUMBING DWV GUIDELINEFORRESIDENTIAL REHABILITATIONBASIC DRAINAGE AND HYDRAULIC CONCEPTSFunction of the Drainage System

The function of the DWV system is to collect spent water from the various building fixtures and drains and to convey this waste water to the public sewer or other disposal area in a safe and efficient manner.

A "safe manner" means collection and transmission without the emission of sewer gases, foul odors, or suds to the inhabitable area of the building. Traps at the entrances to the DWV system provide water seals which prevent the escape of sewer gasses. Most codes limit the pressure fluctuation within drainage systems to plus or minus 1-inch of water pressure under design load conditions. A more practical limitation, and the one used in this guideline, is to limit the trap seal loss to 1-inch of water under normal conditions of stress. Acceptance of this concept permits the planning and carrying out of simple field tests on existing systems to determine their condition, and to provide a basis for approving modified systems in rehabilitated buildings.

An "efficient manner" means the conveyance of waste water and suspended solids without blockage. The generally accepted criteria to ensure efficient performance is to size the drainage lines such that the horizontal velocity is approximately 2 feet per second, since efficient transport is a function of both velocity and depth of flow.



If the depth is not sufficient, solids will settle out. The depth of flow and water velocity are both influenced by the slope or pitch of the drain line. Increasing the slope from 1/8-inch per foot to 1/4-inch per foot increases the velocity of the water while it decreases the depth of flow. Knowledge and understanding of these characteristics of flow provides the basis for adjusting the slope of existing building drains, which often determines the capacity of the plumbing drainage system.

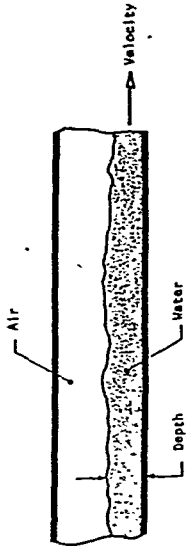
#### Hydraulic Principles

The rate and volume of discharged spent water from plumbing fixtures and drains, as well as the frequency of fixture use, are important variables to the understanding of the functioning of the DWV system. Frequency of fixture use is high in public buildings, such as stadiums and theaters, and low in residential buildings. Estimating fixture use in residences requires only an estimate of the maximum number and combination of fixtures that may discharge simultaneously. In larger buildings, the fixture unit concept is employed. Existing DWV systems are not normally loaded to capacity; therefore, they will usually accept a limited number of additional fixtures without seriously decreasing the system's safety factor.

The rate at which water exits from plumbing fixtures changes continuously. For water closets, the discharge begins a few seconds after the flush is started and gradually rises to a peak rate of 30 gallons per minute, remaining constant for a few seconds and then gradually falling to zero. The use of water saving closets does not increase drainage problems since their peak discharge rate is similar to conventional fixtures. The discharge time for a lavatory is approximately 12 seconds and the peak flow is about 10 gallons per minute. This low flow rate and short duration suggests that lavatories have only a small influence on the functioning of the DWV system. Bathtub discharge is influenced significantly by the geometry of the outlet piping. In most outlet arrangements, the rate of discharge rises to 12 gallons per minute almost instantly and thereafter decreases continuously as the tub drains.

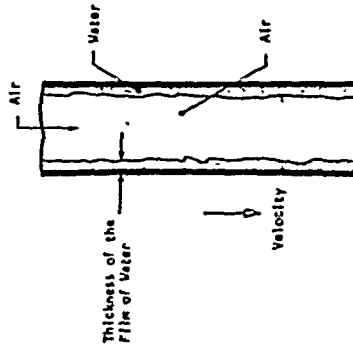
#### Flow in Drains and Stacks

The flow of spent water in horizontal drainage systems may be described as separated flow since the horizontal drain is generally only partially filled. Water moves through the lower half of the pipe, while air flows through the upper half.



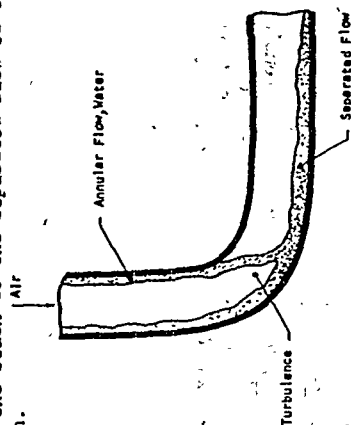
The velocity and depth of the water flow in the drains constantly changes. As the volume of water increases, the depth of flow also increases, displacing the air above it. When most of the normal air space is filled with water, turbulence increases significantly, and even the smallest water pulsations disturb trap seals in the system's plumbing fixtures. Therefore, horizontal drains are designed to flow no more than half full.

The flow in vertical drains or stacks is entirely different. As water enters the stack it attaches itself to the walls of the pipe, forming an annulus. This cylinder of water falls down the pipe, dragging air with it.



The establishment of annular flow is rapid. It occurs within several feet of the point where the water enters the pipe. Increasing the volume of water increases the film thickness. When the volume of water occupies approximately 1/3 of the cross-sectional area of the stack the annular flow breaks down, causing extreme turbulence and pulsations which result in the loss of trap seals. Small diameter vertical pipes close to fixture outlets are susceptible to breakdown of the annular flow which may result in self siphonage of the fixture. It is for this reason that S traps have been prohibited by codes. Modified S traps, where the distance between the trap outlet and the vertical drop is at least two pipe diameters and where the size of the vertical pipe is one diameter larger than the trap inlet, have been found to function without siphonage.

The most critical area in a drainage system is at the base of the stack. In this region the flow must change from the annular flow of the stack to the separated flow of the horizontal drain.



The disturbance at the base of the stack is large, and significant positive pressures are generated which, if not relieved, cause blowback - the passage of water through the trap. If the transition is smooth, much of the air is carried away through the horizontal drain.

Horizontal drains are not able to transport spent water at the same rate as stacks. This results in a phenomenon called hydraulic jump. The change in velocity from approximately 15 feet per second in the stack to 2 feet per second in the horizontal drain forces an increase in the depth of flow. It has been recently found that this rise in the water level occurs much further downstream than the generally accepted 10-pipe diameters. What has been observed in the immediate vicinity of the base of the stack is a washing of the sides of the drain which may cause temporary blockage of fixture drains or vents that enter nearby. Fittings rolled up to 45 degrees are effective in avoiding problems in this area.

#### Modes of Trap Failure

Plumbing seals may fail, as indicated by an unacceptable degree of trap reduction, by one or more of the following means:

- o self-siphonage, or the breaking of the trap seal as a result of siphonic action by the discharge of the fixtures to which the trap is connected
- o induced siphonage, or the breaking of the trap seal as a result of siphonic action by discharge of fixtures other than the one to which the trap is connected

- blowback, or the emission of air or sewer gas into the inhabited area of a building through a fixture trap

The first of these modes of failure, self-siphonage, is related to fixture characteristics and branch piping. Plumbing fixtures which exhibit a sharp fall off in flow, such as round bottom lavatories, are more sensitive to self-siphonage than those with more gradual changes in flow. Traps serving bathtubs are rarely influenced by tub discharge. Self-venting trap arms and branch drains can be designed through knowledge of the fixture discharge curve and correct pipe sizing.

Induced siphonage and blowback are prevented through correct venting design and installation. Every drainage system has a basic hydraulic capacity which may be increased by the addition of vents. The function of venting is to maintain close-to-atmospheric pressure in the drainage system so that trap seals will not be disturbed. A sure way to protect the DWV system is to provide individual fixture vents, an obviously expensive approach. Among the more economical alternatives that have been developed, tested, and commonly approved for residential buildings are stack venting and wet venting.

In stack venting, fixture traps are protected by venting provided through the upper portion of the soil or waste pipe. Successful installations require that fixtures be connected to the stack

- independently;
- according to their rate of discharge, with those with the highest rate of discharge placed at the lowest point in the module;
- at those points where the pressure fluctuations are small.

Wet venting is a technique that uses the drainage pipe itself for vent protection of selected fixtures. In practice, wet vents receive only the spent water from fixtures that have a low rate of discharge. These fixtures need not enter the stack independently, and in many installations groups of fixtures connect to one horizontal branch. A variety of wet vented modules have been developed and accepted over the years.

Progressive plumbing designs incorporate wet vented and stack vented modules as major DWV components, supplemented by individually vented fixtures where required by design restraints.

# 1. DETERMINING THE CONDITION OF THE EXISTING DWV SYSTEM

## A. STRUCTURAL SERVICEABILITY

### Identifying Existing Conditions

A field inspection of the existing DWV system is required to provide specific information indicative of its overall physical condition. Careful attention should be paid to those areas where the DWV system is exposed to view.

### Problems and Proposed Solutions

#### 1.1

Problem. The mechanical strength of existing pipes, fittings, and supports is appreciably lower than that required for new construction and/or the DWV system is inadequately attached to the building. These conditions may be evidenced by extensive corrosion, scale, and other deterioration of wall thicknesses; pipe movement, misalignment, nonuniform slope; joint separation; and other indications of failure, or evidence of exposure to freezing temperatures, excessive thermal expansion and contraction, and fire damage.

Solution. Removal or repair of the damaged parts.

Discussion. Age alone is not indicative of the condition of a plumbing drainage system. Many systems have been found to be in excellent physical condition after decades of service.

#### 1.2

Problem. Reduction of clearances in sleeves and supports, pipe deflection, or other evidence, indicates that the DWV system has been subjected to live or dead loads.

Solution. Remove such live or dead loads and repair or replace damaged parts.

## B. HYDRAULIC INTEGRITY

### Identifying Existing Conditions

(a) If the existing DWV system appears to be watertight and in sound condition, consider performing no tests for hydraulic integrity.

(b) If visual inspection leaves some doubt as to the hydraulic integrity of the DWV system, perform the following system test, if possible:

Finished Plumbing Test. The test of the completed drainage waste and vent system should be completed by filling all traps with water and then introducing into the system, near the base of the stack, a thick pungent smoke. When the smoke appears at the vent openings, they shall be closed and a pressure equivalent to a two-inch water column attained. This pressure shall be held for 15 minutes before inspection starts.

(c) Perform the following test on a portion of the DWV system, if (b) above cannot be performed:

Flow Test. The flow test shall be completed by filling each fixture within a group to its normal capacity and then discharging the spent water. Where several fixtures are connected to the same branch, the fixtures shall be discharged together.

(d) If there is some doubt as to the general serviceability of the DWV system, perform the following test:

Rough Plumbing Test. The water or air test conducted on the roughed in plumbing shall be completed by blocking the lower portion of the system and filling the drainage and vent piping with water. In tall buildings the system should be tested at intervals such that the manufacturer's working pressure for the joints is not exceeded, but no section should be tested with less than 10 feet of water except the uppermost 10 feet of the system. The water shall be kept in the system for at least 15 minutes before the inspection starts. The system shall be tight at all points. When using air as a test media, all inlets and outlets must be sealed except where the air pressure apparatus is connected to the system. Air shall be forced in until a uniform gauge pressure of 5 psi is attained. This pressure shall be held for 15 minutes without the introduction of additional air.

### Problem and Proposed Solution

#### 1.3

Problem. The entire DWV system is not leak tight when tested by methods (a) and/or (b) above, or the major elements of the DWV system are not leak tight when subjected to a pressure of 5 psi, by method (d) above.

Solution. Repair or remove parts of the DWV system as needed to bring it to a condition of leak-tightness under the subject tests

C. FUNCTIONAL PERFORMANCE

Identifying Existing Conditions

DWV systems with proven hydraulic integrity (see B above), should be subjected to the following clear water test for determining resistance to induced siphonage and blowback:

- (a) Select the required test load from the table below. The fixtures selected for discharge shall be those most remote with respect to the building drain in single family homes, and vertically adjacent at the uppermost levels in multi-family dwellings

Building Type	Test Load
Single family residence . . . . .	One water closet and one tub
Low rise multi-family up to four stories . . . . .	Two water closets . . . . .
High rise multi-family up to ten stories . . . . .	Two water closets and one tub
(b) Fill all fixture traps. Discharge the selected fixtures simultaneously. Observe and record the trap seal loss in the idle fixture traps. Observe the lower floor waste closets for blowback	

Problem and Proposed Solutions

1 4 Problem Trap seal loss of more than one-inch of water, and/or blowback, is observed in the DWV system

Solution Modify, in accordance with Part 4 of the guideline, the DWV system to a condition where it meets the above test (see also the Basic Drainage and Hydraulic Concepts section of this guideline)

Discussion Performance tests in the laboratory on full-scale drainage systems have shown that trap seal loss by induced siphonage is greatest in those fixtures located two and three floors below the active fixtures. Blowback, the most common mode of failure, usually is observed in the ground or first floor water closets. Systems near capacity will show trap seal reduction of 3/4" to 1" and/or display considerable movement of the water surface in the closets.

2 DETERMINING THE CAPACITY OF THE EXISTING DWV SYSTEM

- 1) Identify and count all fixtures connected to each DWV stack. Translate the fixture count into fixture unit values, based on the following table:

Fixture	Fixture Units
Automatic washers	3
Bath tub (w/ or w/o overhead shower)	2
Bathroom group	6
Dishwasher	2
Floor drain	2
Kitchen sink, w/ or w/o food-waste grinder	2
Lavatory	1
Laundry tray	2
Shower stall	2
Sink, service type w/ floor outlet trap stan	3
Sink, service type with p-trap	2
Water closet	4

- 2) Identify the size of the stack and size and slope of the drain
- 3) Determine the extent of venting (i.e., single stack with no vents, vents of unknown condition, or code-compliant vents).
- 4) Based on (2) and (3) above, estimate the fixture unit capacity of the DWV system from the following table:

Building			Code
Stack size	Drain size @ 1/4" slope* per foot	Single stack (no vents) condition	
3"	4"	15**	72**
4"	4"	150	216
4"	5"	ALLOWABLE FIXTURE UNITS	480
5"	5"		480
5"	6"		840

\* if slope exceeds 1/4" per foot, capacity will increase

\*\* not more than 3 stories, nor more than 6 water closets

Note: Data for the above table was prepared by the Davidson Laboratory, Stevens Institute of Technology

## 3 RELOCATING FIXTURES

Identifying Existing Conditions

- 1 Determine the new location of the desired fixture(s)
- 2 Determine the location of the vertical drain that services the new fixture(s)
- 3 Use the following table to determine if the proposed length of the fixture drain exceeds the maximum allowed

Maximum Length of Fixture Drains

Diameter of Drain	Length
1 1/4"	5'
1 1/2"	7'
2"	10'
3"	12'
4"	20'

Problem and Proposed Solution

## 3 1

Problem. The length of the fixture drains for the fixture to be relocated exceeds that allowed by the local plumbing code

Solution: Allow fixture drain lengths up to the maximum indicated in the above table.

Discussion. The concern for self-siphonage in fixtures has led to limitations on lengths of fixture drains. Existing distances as specified in codes impose a severe restriction on rehabilitation. The smaller diameter fixture outlets of modern installations have reduced flow rates and suggest longer permissible fixture drains. The above recommended distances have been developed by the Davidson Laboratory, Stevens Institute of Technology.

## 3 2

Problem. An S trap that is prohibited by the local plumbing code exists in a building to be rehabilitated.

Solution. Allow modification of the fixture so that the distance between the trap outlet and the vertical drop is at least two pipe diameters but only if the size of the vertical pipe is one diameter larger than the trap inlet.

Discussion. The concern for self-siphonage common to S traps has led to their prohibition by codes. Self-siphonage in S traps can be eliminated by the modification described above.

## 4 ADDING NEW FIXTURES TO EXISTING DWV SYSTEMS, EXTENDING DWV SYSTEMS, AND INSTALLING NEW DWV SYSTEMS IN EXISTING BUILDINGS

Identifying Existing Conditions

Determine the structural, hydraulic, and functional performance of the existing DWV system as in Part 1 of these Guidelines. Determine the capacity of the existing DWV system as in Part 2 of this guideline

Problem and Proposed Solutions

## 4 1

Problem. Full compliance with existing plumbing codes in adding to or altering existing plumbing DWV systems may lead to unintended structural or other changes that result in unwarranted additional costs and delays to rehabilitation projects

Solution. All additions and alterations to existing plumbing DWV systems should be designed and installed in accordance with the following performance specifications

1) Transport of Wastes

Requirement. Waste water and sewage should be removed from the building and transported to an acceptable point of disposal without overflowing, accumulating, or backing up into fixtures

Criteria.

- a) Drainage stacks shall carry design loads when flowing less than 1/3 full at terminal velocity.
- b) Horizontal sanitary drains, except horizontal fixture drains, should flow no more than approximately 1/4 full under design loads. Horizontal fixture drains should be sized to give an optimum balance between scouring velocity, diameter, and carrying capacity.

c) Maximum lengths of fixture drains are as follows:

Diameter of Drain	Length
1 1/4"	5'
1 1/2"	7'
2"	10'
3"	12'
4"	20'

- d) Waste lines (especially kitchen lines of 2" diameter or less) should not pass through unheated spaces, or be located within or adjacent to outside walls.

e) Vents should not connect to horizontal drains unless the bases of such vent connections are washed by the discharge from one or more small fixtures.

f) Provide a uniform, continuous grade of the invert of horizontal drain lines.

g) Fittings, devices, connections, and methods of installation should not obstruct or retard the normal flow of fluids in soil, waste or vent lines.

h) Waste water or waterborne solids from an active drain pipe shall not pass through an idle trap to a fixture.

i) Suitable means should be provided for handling drainage below sewer level. Drainage from parts of drainage systems which cannot drain by gravity into the sewer should be disposed of through subbuilding drainage systems and discharged into the building gravity drainage system by automatic equipment or by another approved method.

Test. Determination of conformance to criteria by evaluation of calculations, plans, and specifications, inspection of built elements, and conformance to good engineering and trade practices.

Discussion. These criteria have been derived from experience and research on plumbing hydraulics at the Davidson Laboratory, Stevens Institute of Technology, or from standard design practice.

## 2) Durability

Requirement. The plumbing DWV system and its parts should have a reasonable life expectancy.

### Criteria

a) New plumbing DWV equipment and systems should be made of materials approved for new construction materials, free from defective workmanship, and designed and installed so as to be durable, without need for frequent repairs or major replacements.

b) Before proceeding with an installation, the installer should consult with the local Building Department to determine the durability of materials and joints used under local conditions.

c) The installer should observe the manufacturer's good practice recommendations regarding care, installation, and adjustment of equipment so that the performance of such products will not be impaired by defects or damage during installation, or by poor installation practices.

Test. Determination of conformance to criteria by inspection of installation and materials, and conformance to good trade practices.

## 3) Maintainability

Requirement. The design and installation of the drainage system should provide for cleaning, servicing, adjusting, or replacing the various elements, and should minimize conditions that contribute to soiling, deposition, fouling, clogging, or other maintenance problems.

### Criteria.

a) Horizontal drains shall be installed in uniform alignment at a slope in the direction of flow of at least 1/4 inch per foot for diameters of 4 inches and greater, to obtain self-scouring velocities. Where such slopes are not attainable, lesser slopes may be used if a mean velocity of at least 2 feet per second can be computed for open channel steady flow at an assumed depth equal to 1/2 of the diameter.

b) Access to permit convenient removal of obstructions and fouling matter in horizontal drain lines should be provided not more than 100 feet apart for larger pipes; at each change of direction of the building drain in excess of 45°; at or near the foot of each vertical soil or waste stack; and near the junction of the building drain and building sewer.

Test. Determination of conformance to criteria by evaluation of calculations, plans, and specifications, inspection of built elements, and conformance to good engineering and trade practices.

## 4) Structural Serviceability

Requirement. The drainage waste and vent system should be capable of withstanding the physical forces that may reasonably be expected in the building during the rehabilitation process and in subsequent use.

### Criteria.

a) The mechanical strength of new pipe, fittings, and supports should be similar to that of new construction.

b) The drainage, waste, and vent system should be securely attached to the building.

c) Drainage, waste, and vent piping shall not be subject to dead or live loads at any time.

Test Evaluation of installation5) Hydraulic Integrity

Requirement The drainage, waste, and vent system should be air and water tight under conditions of normal use.

Criteria

a) Rough Plumbing Test The major elements of the drainage waste and vent system, building drains, stacks and horizontal branches shall be leak tight when subjected to a pressure of 5 psi

b) Finished Plumbing Test The completed drainage waste and vent system shall be leak tight when subjected to a pressure equivalent to a 2-inch water column

Test

a) Rough Plumbing Test The water or air test conducted on the roughed in plumbing shall be completed by blocking the lower portion of the system and filling the drainage and vent piping with water. In tall buildings the system should be tested at intervals such that the manufacturer's working pressure for the joints is not exceeded but no section should be tested with less than 10 feet of water except the uppermost 10 feet of the system. The water shall be kept in the system for at least 15 minutes before the inspection starts. The system shall be tight at all points.

When using air as the test media, all inlets and outlets must be sealed except where the air pressure apparatus is connected to the system. Air shall be forced in until a uniform gauge pressure of 5 psi is attained. This pressure shall be held for 15 minutes without the introduction of additional air

b) Finished Plumbing Test The test of the completed drainage waste and vent system shall be completed by filling all traps with water and then introducing into the system near the base of the stack a thick pungent smoke. When the smoke appears at the vent openings, they shall be closed and a pressure equivalent to a 2-inch water column attained. This pressure shall be held for 15 minutes before inspection starts.

6) Functional Performance

Requirement. The drainage, waste and vent system should accept and transport spent water and liquid in a safe and efficient manner.

Criterion The drainage, waste and vent system shall not, under conditions of normal use, emit sewer gas and foul air, or eject suds or liquids inside the building

Test A clear-water test for determining resistance to induced siphonage and blowback shall be conducted on a pressure tight system

a) Select the required test load from the table below.

Fixtures selected for discharge shall be those most remote with respect to the building drain in single family homes, and vertically adjacent at the uppermost levels in multi-family dwellings

Building TypeTest Load

Single Family Residence.	One water closet and one tub
Low Rise multi-family up to 4 stories	Two water closets
High rise multi-family. up to 10 stories	Two water closets and one tub

b) Fill all fixture traps. Discharge the selected fixtures simultaneously. Observe and record the trap seal loss in the idle fixture traps. Observe the lower floor water closets for blowback.

c) Trap seal loss greater than one inch, or evidence of blowback, should be the basis for rejection.

Commentary. Performance tests in the laboratory on full-scale drainage systems have shown that trap seal loss by induced siphonage is greatest in those fixtures located two and three floors below the active fixtures. Blowback, the most common mode of failure, usually is observed in the ground or first floor water closets. Systems near capacity will show trap seal reduction of 3/4"-1" and/or display considerable movement of the water surface in the closets.

7) Surcharged Sewers

Requirement. Sewage should not enter the building from public sewer systems

Criterion. Where the drainage system of a building is subject to backflow from the public sewer system, suitable means should be employed to prevent such backflow from entering the building.

Test. Evaluation of installation.

Discussion. The overflow of sewage in buildings from backflow effects is a serious malfunction of plumbing and sewerage systems, and should be remedied during the rehabilitation process, if required.

## APPENDIX

EXAMPLES OF ACCEPTABLE DWV PRACTICES FOR  
BUILDING REHABILITATION

The Appendix to this guideline illustrates acceptable practices that comply with the above performance specifications for additions and alterations to existing plumbing DWV systems in rehabilitation projects.

5 THROUGH-THE-WALL VENTING

Identifying Existing Condition

An existing DWV system, an addition to an existing DWV system, or a new DWV system in an existing building, may include through-the-wall rather than roof venting. This condition may be determined by inspecting the building or examining existing and/or proposed plans

Problem and Solution

5 1 :

Problem Through-the-wall venting, usually prohibited by codes, exists or is proposed in an existing building to be rehabilitated

Solution Accept through-the-wall venting in the following instances:

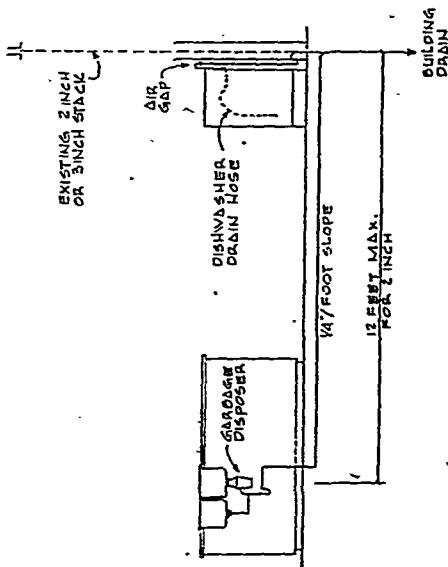
(a) In historic building where through-roof venting would interfere with the character of the building

(b) In rehabilitation projects where conventional venting is impractical. In this case, the vents should be at least ten feet horizontally from the lot line and should be turned downward. They should be effectively screened, not be located directly below any door, window or other building opening, nor should any such vent terminal be within ten feet horizontally of such an opening unless it is two feet above the top of such opening. Vent terminals shall not terminate under the overhang of a building

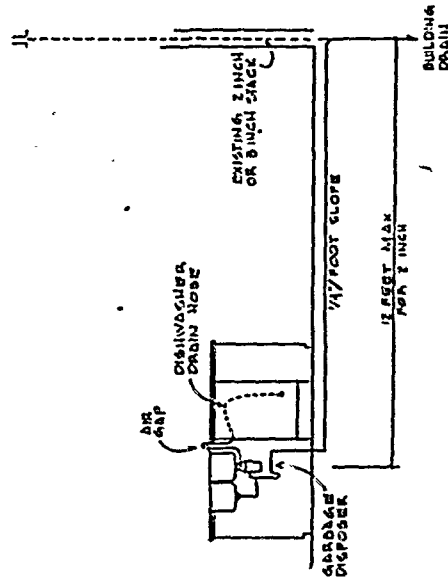
Symbols

WC	water closet
T	bath tub
L	lavatory
KS	kitchen sink
---	new sanitary piping
---	existing sanitary piping
---	vents

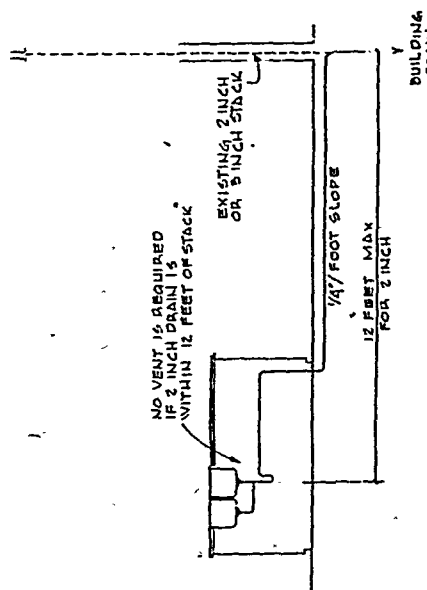




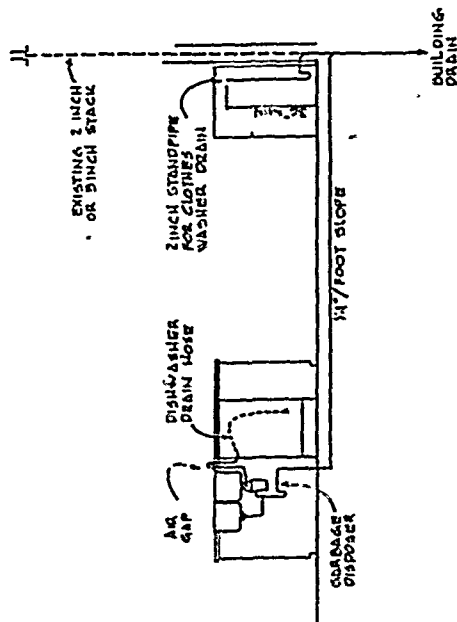
ISLAND SINK WITH DISPOSER AND DISHWASHER AT WALL  
Single Family Dwelling



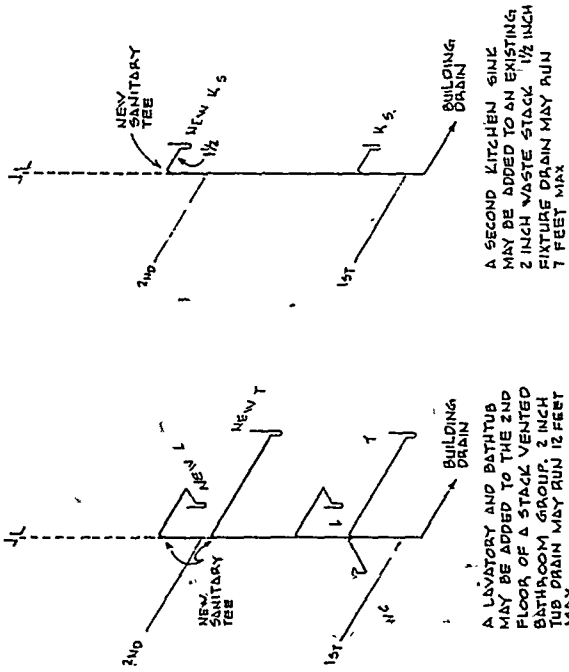
ISLAND SINK WITH DISPOSER AND DISHWASHER  
Single Family Dwelling



ISLAND SINK  
Single Family Dwelling

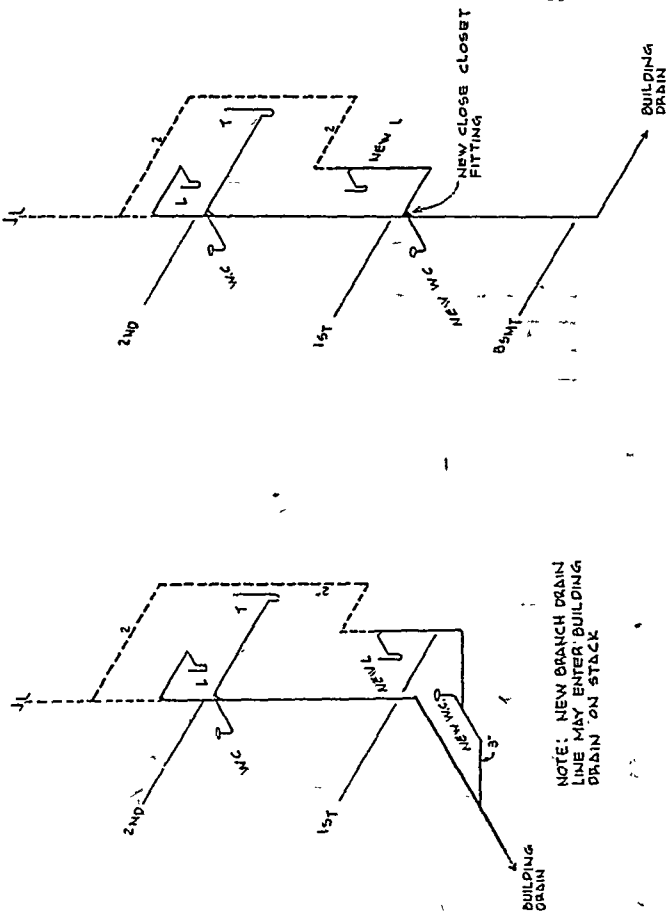


ISLAND SINK WITH DISPOSER, DISHWASHER, AND CLOTHES  
WASHER AT WALL  
Single Family Dwelling



ADDITIONS TO SECOND FLOOR FIXTURES TO  
EXISTING STACKS

Single Family Dwelling,  
Slab on Grade

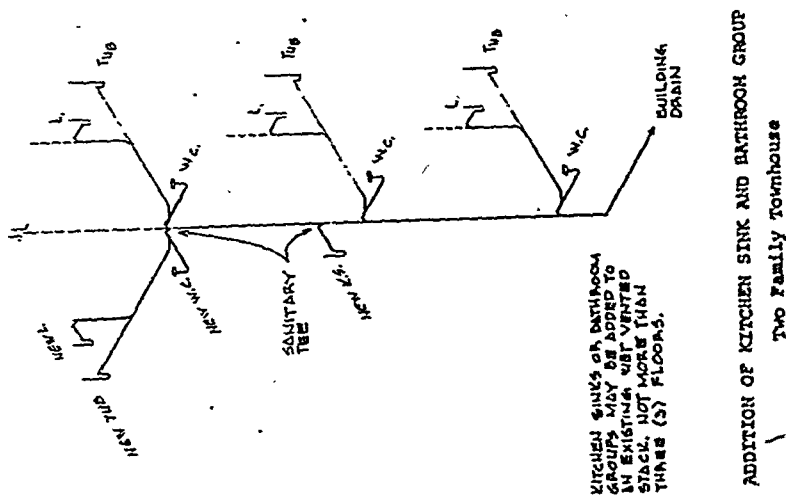
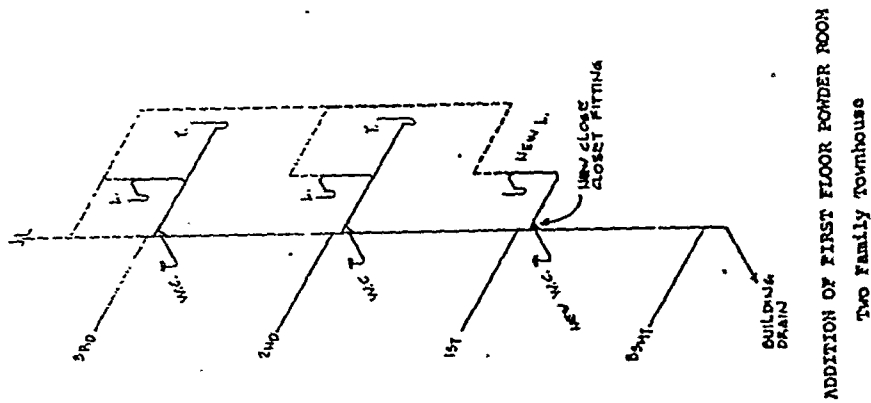
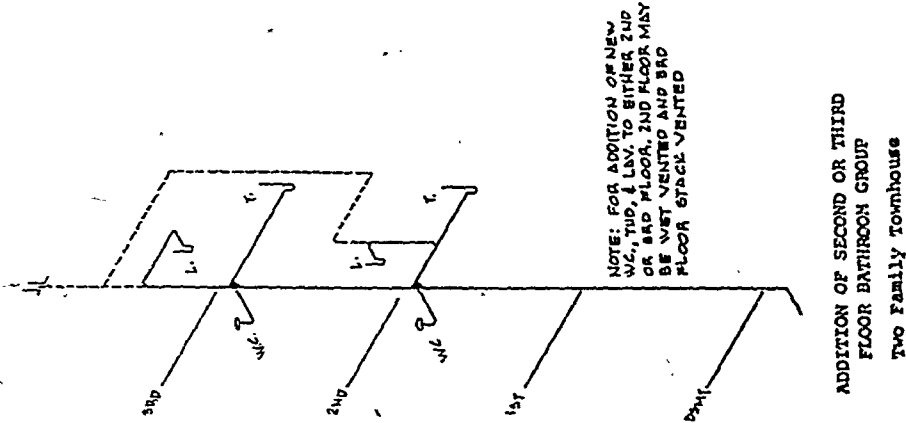


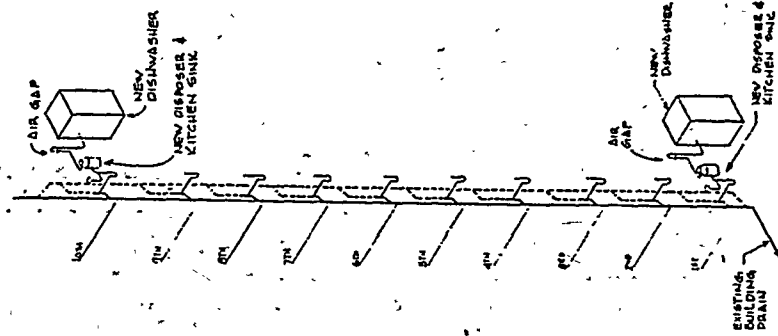
ADDITION OF FIRST FLOOR  
POWDER ROOM

Single Family Dwelling,  
with Basement

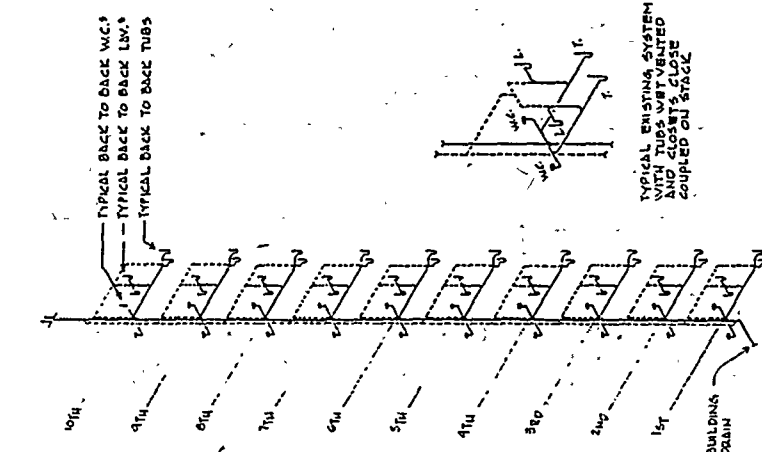
ADDITION OF FIRST FLOOR  
POWDER ROOM

Single Family Dwelling,  
Slab on Grade

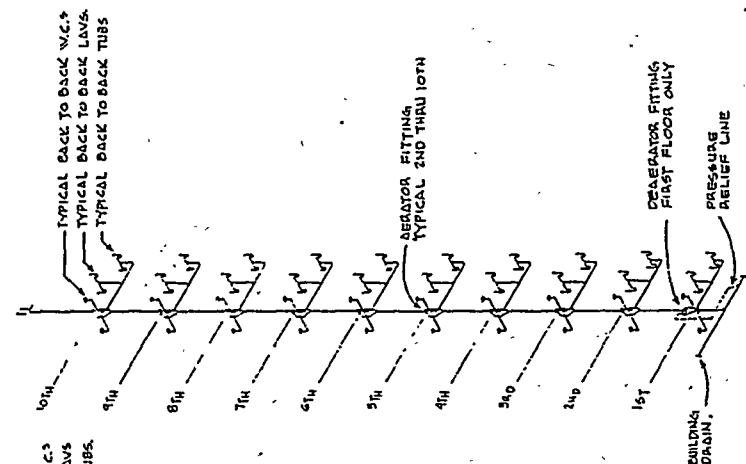




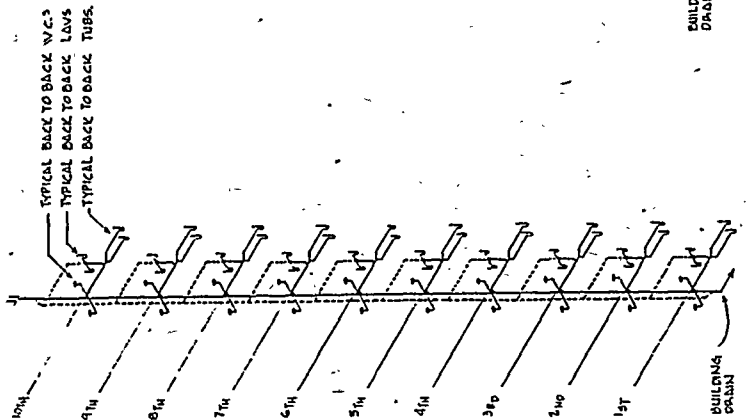
ADDITION OF DISPOSER AND DISHWASHER  
TO KITCHEN SINK  
Multi-Family High Rise



TYPICAL EXISTING VENTED SYSTEM  
WITH ALTERNATE  
Multi-Family High Rise



SINGLE STACK SYSTEM  
Multi-Family Highrise



WET VENTING OF TUBS AND WATERCLOSETS  
Multi-Family Highrise

Volume 3  
Rehabilitation Guidelines  
GUIDELINE ON FIRE RATINGS OF ARCHAIC MATERIALS AND ASSEMBLIES

FOREWORD

Section 903 of the Housing and Community Development Amendments of 1978 (Public Law 95-557, enacted October 31, 1978) requires that the Secretary of the Department of Housing and Urban Development:

*"develop model rehabilitation guidelines for the voluntary adoption by States and communities to be used in conjunction with existing building codes by State and local officials in the inspection and approval of rehabilitated properties."*

Section 903 of the Amendments was predicated in part by the March 24, 1978 hearing on the "Impact of Building Codes on Housing Rehabilitation," held by the Senate Committee on Banking, Housing, and Urban Affairs. The hearing highlighted the many code-related problems that arise during the rehabilitation of the nation's existing building stock. Hearing testimony indicated that a significant cause of these problems was that existing codes and code enforcement techniques are primarily designed for new construction, and contain neither the administrative, legal, or technical mechanisms to properly deal with rehabilitation.

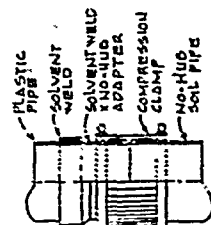
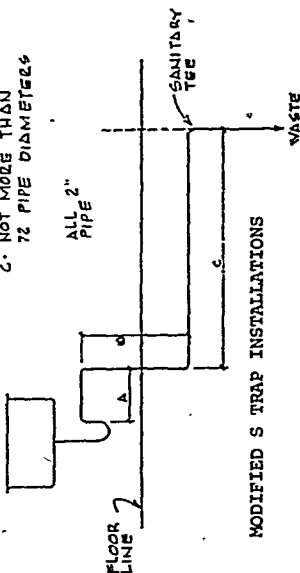
Section 903 of the Amendments also requires that the Secretary of the Department of Housing and Urban Development shall:

*"publish such guidelines for public comment not later than one year after the enactment of this section, and promulgate them no later than eighteen months after such date of enactment."*

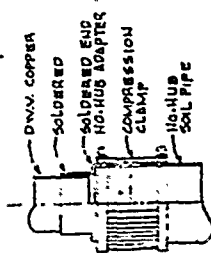
Accordingly, the following draft documents have been prepared for public comment:

- Rehabilitation Guidelines, Volume 1  
Administrative and Legal Guidelines for Building Rehabilitation
- Rehabilitation Guidelines, Volume 2  
Technical Guidelines for Residential Rehabilitation
- Rehabilitation Guidelines, Volume 3  
Guideline on Fire Ratings of Archaic Materials and Assemblies

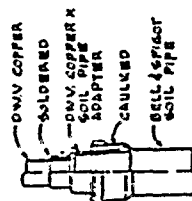
- A - NOT MORE THAN 10 PIPE DIAMETERS
- B - NOT MORE THAN 24 PIPE DIAMETERS
- C - NOT MORE THAN 72 PIPE DIAMETERS



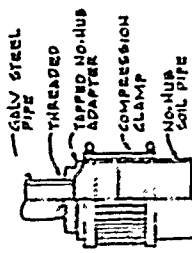
PLASTIC TO NO-HUB C.I.



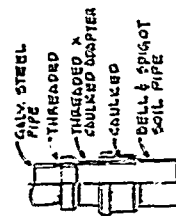
COPPER TO NO-HUB C.I.



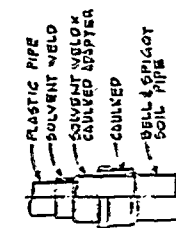
COPPER TO BELL SPIGOT C.I.



GALV. PIPE TO NO-HUB C.I.



GALV. TO BELL & SPIGOT C.I.



PLASTIC TO BELL & SPIGOT C.I.

TYPICAL CONNECTION DETAILS

The intent of these guidelines is to reduce, while maintaining essential levels of health and safety, those regulatory requirements that create unnecessary constraints, time delays, and higher costs for building rehabilitation.

Volume 1, Administrative and Legal Guidelines for Building Rehabilitation, is designed for use by building officials, members of the legislative and executive branches of State and local governments, and related commissions and organizations that are involved in developing or implementing building regulations. Volume 1 covers the following topics:

- The Guideline for Setting and Adopting Standards for Building Rehabilitation provides an introduction and background to the building regulations that affect rehabilitation. It shows methods for identifying existing regulatory conditions in a community and lists recommendations for amending or modifying the community's regulatory system to encourage rehabilitation.
- The Guideline for Municipal Approval of Building Rehabilitation outlines a model submittal, review, and approval process for rehabilitation that is recommended for adoption by municipal building departments.
- The Statutory Guideline for Building Rehabilitation provides recommendations for statutorily modifying existing code decision making systems with the express goal of promoting rehabilitation.
- The Guideline for Managing Official Liability Associated with Building Rehabilitation addresses the liability of code officials involved with the regulation and enforcement of building rehabilitation, and provides recommendations for minimizing liability problems.

Volume 2, Technical Guidelines for Residential Rehabilitation, is intended for use by code inspectors, designers, and builders involved in residential rehabilitation. Volume 2 covers the following topics:

- The Egress Guideline for Residential Rehabilitation lists design alternatives for the components of egress that are regulated by current codes: number of exits, corridors and stairs, arrangement of exits, travel distance, dead-end travel, and exit capacity and width.
- The Electrical Guideline for Residential Rehabilitation discusses the establishment of standards for electrical rehabilitation, gives procedures for conducting inspections of electrical systems, and presents problems and solutions associated with electrical rehabilitation.
- The Plumbing DWV Guideline for Residential Rehabilitation includes a background discussion of basic drainage and hydraulic concepts, followed by criteria to determine the condition and capacity of

existing DWV (drainage, waste, and vent) systems. Methods and criteria are presented for relocating fixtures, adding new fixtures to existing DWV systems, extending existing DWV systems, and installing new DWV systems in existing buildings. Through-the-wall venting is also discussed.

Volume 3, Fire Ratings of Archaic Materials and Assemblies, is intended for use by code officials and designers in determining the fire ratings of building materials and assemblies that are no longer listed in current building codes or related reference standards. Extensive entries are provided for the fire ratings of walls, columns, floors and ceilings. Introductory material discusses flame spread, the effects of penetrations, and methods for determining the ratings of assemblies not listed in the guideline.

The draft rehabilitation guidelines were prepared by the National Institute of Building Sciences under contract to the Department of Housing and Urban Development. Issues addressed in the guidelines were selected from a March, 1978 study by the Institute entitled "Code-Related Rehabilitation Problems: Problem Identification/Verification/Feasibility Report," which identified approximately fifty code-related problems and determined that eighteen of these problems were feasible to address within the state-of-the-arts and within the legislated time constraints. Actual problem selection was made by a committee formed by the Institute under the legislative mandate that:

*"such guidelines shall be developed in consultation with....appropriate national organizations of agencies and officials of State and local governments, representatives of the building industry, and consumer groups, and other interested parties."*

The committee formed by the Institute was composed of representatives of the following organizations:

- Council of American Building Officials
- National Conference of States on Building Codes and Standards
- National Fire Protection Association
- American Institute of Architects
- Building Code Action
- National Home Improvement Council
- National Housing Rehabilitation Association
- National Association of Home Builders
- AFL-CIO Building and Construction Trades Department
- Association of Major City Building Officials
- U.S. Conference of Mayors
- National League of Cities
- National Trust for Historic Preservation
- U.S. League of Savings Associations
- National Association of Housing and Redevelopment Officials

## TABLE OF CONTENTS

Major subcontractors used by the Institute for addressing the selected problems included:

- Building Technology, Inc.
- Joseph Stein
- Davidson Laboratory, Stevens Institute of Technology
- Council of American Building Officials
- J. Bradford Corporation
- National Fire Protection Association
- Arthur D. Little, Inc.
- National Conference of States on Building Codes and Standards
- Vincent Brannigan, Esq.

## INTRODUCTION

## SECTION I FIRE-RELATED PERFORMANCE OF ARCHAIC MATERIALS AND CONSTRUCTION

## A. Fire Performance Measures

Flame Spread  
Smoke Production  
Degree of Combustibility

## B. Combustible Construction Types

## SECTION II BUILDING EVALUATION

## A. Preliminary Evaluation

## B. Fire Resistance of Existing Building Elements

## C. Effects of Penetrations in Fire Resistant Assemblies

## SECTION III FINAL EVALUATION AND DESIGN SOLUTIONS

## A. The Experimental Approach

## B. The Theoretical Approach

Harmathy's Ten Rules

Example Applications of Harmathy's Rules

## C. "Thickness Design" Strategy

## SECTION IV SUMMARY GUIDELINE

## BIBLIOGRAPHY

## APPENDIX

## Introduction

## Section I Walls

## Section II Columns

## Section III Floor Ceiling Assemblies

## Section IV Beams

## Section V Doors and Door Materials

## INTRODUCTION

The Guideline on Fire Ratings of Archaic Materials and Assemblies focuses upon the fire-related performance of archaic construction "Archaic" encompasses construction typical of an earlier time, generally prior to 1950. "Fire-related performance" includes fire resistance, flame spread, smoke production and degree of combustibility.

The purpose of this Guideline is to update the information which was available at the time of original construction, for use by architects, engineers, and code officials when evaluating the fire safety of a rehabilitation project. The local origin of many archaic materials means that there may never have been any fire test information available about the particular material of a given project. A perspective and framework for the evaluation of general classes of materials and types of construction is presented for these cases.

It has been assumed that the building materials and their fastening, joining, and incorporation into the building structure are sound mechanically. Therefore, some determination must be made that the original manufacture, the original construction practice, and the rigors of aging and use have not weakened the building. This assessment can often be difficult because process control was not good in many industries, and variations among locally available raw materials and manufacturing techniques often resulted in a product which varied widely in its strength and durability. The properties of iron and steel, for example, varied widely, depending on the mill and the process used.

There is nothing inherently inferior about archaic materials or construction techniques. The pressures that promote fundamental change are most often economic or technological -- matters unrelated to concerns for safety. The high cost of labor made wood lath and plaster uneconomical. The high cost of land and the congestion of the cities provided the impetus for high-rise construction. Improved technology made it possible. The difficulty with archaic materials is not a question of suitability, but familiarity.

Code requirements for the fire resistance of key building elements (e.g., walls, floor/ceiling assemblies, doors, shaft enclosures) are stated in performance terms: hours of fire resistance. It matters not whether these elements were built in 1909 or 1979, only that the required degree of fire resistance be provided.

Building officials will generally require that the fire resistance of these key building elements be documented. This documentation is widely available for current materials and assemblies: manufacturers provide test data to encourage the use of their products and designs; some codes contain tables listing approved designs; independent testing laboratories publish indices of test results.

The problem with archaic materials is simply that documentation of their fire performance is not readily available. The application of engineering judgment is more difficult because building officials are often not familiar with the materials or construction method involved. As a result, either a full-scale fire test will be required or the archaic construction in question removed and replaced. Both alternatives are time consuming and wasteful.

This Guideline and the accompanying Appendix are designed to help fill this information void. By providing the necessary documentation, there will be a firm basis for the continued acceptance of existing archaic materials and assemblies.

## SECTION I

### FIRE-RELATED PERFORMANCE OF ARCHAIC MATERIALS AND ASSEMBLIES

#### A Fire Performance Measures

This Guideline does not specify what level of performance will be required for the various building components. These requirements will depend upon the building occupancy and use, and are normally set forth in the building code.

The fire resistance of a given building element is established by subjecting a sample of the assembly to a "standard" fire test which follows a "standard" time temperature curve. This test method has changed little since the 1920's. The test results tabularized in the Appendix have been adjusted to reflect current test methods.

The current model building codes cite other fire-related properties not always tested for in earlier years: flame spread, smoke production, and degree of combustibility. However, they can generally be assumed to fall within well defined values since the principal combustible component of archaic materials is cellulose. The first flame spread fire tests were just being developed around the early 1940's. Though smoke production is more important today because of the increased use of plastics, the early flame spread tests also included a test for smoke production.

"Plastics", one of the most important classes of contemporary materials, were not found in the review of archaic materials. If plastics are to be used in a rehabilitated building, they should be evaluated by contemporary standards. Information and documentation of their fire-related properties and performance is widely available.



Flame spread, smoke production and degree of combustibility are discussed in detail below. Test results for eight common species of lumber are noted in the following Table:

TUNNEL TEST RESULTS FOR EIGHT SPECIES OF LUMBER (104)

Species of Lumber	Flame Spread	Fuel Contributed	Smoke Developed
Western White Pine	75	50-60	50
Northern White Pine	120-215	120-140	60-65
Ponderosa Pine	180-215	120-135	100-110
Yellow Pine	180-190	130-145	275-305
Red Gum	140-155	125-175	40-60
Yellow Birch	105-110	100-105	45-65
Douglas Fir	65-100	50-80	10-100
Western Hemlock	60-75	40-65	40-120

#### Flame Spread

The flame spread of interior finishes is usually measured by the ASTM E-84 "tunnel test". The most commonly used flame spread classifications (FSC) are: Class I or A\*, with a 0-25 FSC; Class II or B, with a 26-75 FSC; and Class III or C, with a 76-200 FSC. The NFPA Life Safety Code also has a Class D (201-500 FSC) and Class E (over 500 FSC) interior finish. These classifications are typically used in modern building codes to restrict the rate of fire spread. Only the first three classifications are normally permitted.

In general, inorganic archaic materials (e.g., bricks or tile) can be expected to be in Class I. Materials of whole wood are mostly Class II. Whole wood is defined as wood used in the same form as sawn from the tree. This is in contrast to the contemporary reconstituted wood products such as plywood, fiberboard, hardboard or particle board. If the organic archaic material is not whole wood, the flame spread classification could be well over 200 and thus would be particularly unsuited for use in exits and other critical locations in a building. Some plywoods and various wood fiberboards may have flame spreads over 200. Although they can be treated with fire retardants to reduce their flame spread, it would be advisable to assume that all such products have a flame spread over 200 unless there is information to the contrary.

\* Some codes use roman numerals, others use letters.

#### Smoke Production

The evaluation of smoke density is part of the ASTM E-84 tunnel test. For the eight species of lumber shown in the table above, the highest levels are 275-305 for Yellow Pine, but the others are less smoky than the red oak which has an index of 100. The advent of plastics caused substantial increases in the smoke density values measured by the tunnel test. The ensuing limitation of the smoke production for wall and ceiling materials by the model building codes has been a reaction to the introduction of plastic materials. In general, cellulosic materials fall in the 50-300 range of smoke density which is below the general limitation of 450 adopted by many codes.

#### Degree of Combustibility

There has been a tendency by the model building codes to define "non-combustibility" on the basis of having passed ASTM E-136 or if the material is totally inorganic. The acceptance of gypsum wallboard as noncombustible is based on limiting paper thickness to 1/8" and 0-50 flame spread classification (FSC) by ASTM E-84. At times there were provisions to define a Class I or A material (0-25 FSC) as noncombustible, but this is not currently recognized by most model building codes.

If there is any doubt whether or not an archaic material is noncombustible, it would be appropriate to send out samples for evaluation by ASTM E-136. If an archaic material is determined to be noncombustible by ASTM E-136, it can be expected that it will not contribute fuel to the fire.

#### B. Combustible Construction Types

One of the earliest forms of timber construction utilized exterior load-bearing masonry walls with columns and/or wooden walls supporting wooden beams and floors in the interior of the building. This form of construction, often called "mill" or "heavy timber" construction, has approximately 1-hour fire resistance. The exterior walls will generally contain the fire within the building.

As population pressure increased and more lumber became available, there was a switch from heavy timber to "balloon frame" construction. The balloon frame uses load-bearing exterior wooden walls which have long timbers often extending from foundation to roof. When longer lumber became scarce, another form of construction, "platform" framing, replaced the balloon framing. The difference between the two systems is significant because platform framing is automatically fire-blocked at every floor while balloon framing commonly has concealed spaces that extend unblocked from basement to attic. The architect, engineer, and code official must be alert to the details of construction and the ease with which fire can spread in concealed spaces.

TABLE A  
PRELIMINARY EVALUATION  
FIELD NOTES

Building Element	Materials	Dimension	Condition	Notes
Exterior Bearing Walls				
Interior Bearing Walls				
Exterior Non-Bearing Walls				
Interior Non-Bearing Walls or Partitions:				
A				
B				
Structural Frame:				
Columns				
Beams				
Other				
Floor/Ceiling Structural System Spanning				
Roofs				
Doors (including frame and hardware):				
a) Enclosed vertical exitway				
b) Enclosed horizontal exitway				
c) Other				

## SECTION II

## BUILDING EVALUATION

A given rehabilitation project will most likely go through several stages. The preliminary evaluation process involves the designer in surveying the prospective building. The fire resistance of existing building materials and construction systems are identified; potential problems are noted for closer study. The final evaluation phase includes: developing design solutions to upgrade the fire resistance of building elements, if necessary; the preparation of working drawings and specifications; and the securing of the necessary code approvals.

## A Preliminary Evaluation

A preliminary evaluation should firstly consist of a building survey to determine the existing materials, the general arrangement of the structure, the use of the occupied space, and the details of construction. The designer needs to know "what is there" before a decision can be reached about what to keep and what to remove in the rehabilitation process. This preliminary evaluation should be as detailed as necessary to make initial plans. The fire-related properties need to be determined from the applicable building code, and the existent materials and assemblies in the building then need to be evaluated for these properties. Two work sheets are introduced below to facilitate the preliminary evaluation.

Table A is a suggested work sheet for the preliminary field notes. This work sheet lists the materials, thickness, and condition for each of the principal building elements. In addition to Table A, the field investigator should prepare a schematic diagram showing the exit system for the building and to indicate where each element from Table A fits into the structure as a whole. Each floor of the structure should be visited and the information in Table A completed. In practice, there will often be identical materials and construction on each floor, but the exception to this rule may be of vital importance. A drawing should be prepared of each floor showing the layout of exits and hallways. The exact arrangement of interior walls within apartments or offices is of secondary importance from a fire safety point of view and need not be shown on the drawings unless these walls are required by the building code to have a fire resistance rating.

The location of stairways and elevators should be clearly marked on the drawings. If exterior steel "fire escapes" are present, they should be identified even though they are no longer favored for exiting purposes.

The following notes explain the entries in Table A:

- (1) Exterior Bearing Walls: Many old buildings utilize heavily constructed walls to support the floor/ceiling assemblies at the exterior of the building. There may be columns and/or interior bearing walls within the structure, but these exterior walls are an important

factor in assessing the fire safety of a building. The field investigator should note how the floor/ceiling assemblies are supported at the exterior of the building. If columns are incorporated in the exterior walls, the walls may be considered non-bearing.

- (iii) Interior Bearing Walls: It may be difficult to determine whether or not an interior wall is load bearing, but the field investigator should attempt to make this determination. At a later stage of the rehabilitation process, this question will need to be determined exactly. Nevertheless, the field notes should be as accurate as possible.

- (iii) Exterior Non-Bearing Walls: The fire resistance of the exterior walls is important for two reasons. These walls (both bearing and non-bearing) are depended upon to contain a fire: a) within the building; or b) keep an exterior fire outside the building. It is therefore important to indicate on the drawings where any openings are located as well as the nature of all doors or shutters. The drawings should indicate the presence of wired glass and identify the materials used for windows and door frames. The ground floor drawing should locate the building on the property and indicate the precise distances to adjacent buildings.

- (iv) Interior Non-Bearing Walls or Partitions: A partition is a "wall that extends from floor to ceiling and subdivides space within any story of a building." (48) Table A has two categories (A & B) for Interior Non-Bearing Walls or Partitions which can be used for different walls, such as hallway walls as compared to inter-apartment walls. Under some circumstances there may be only one type of wall construction; in others, three or more types of wall construction may occur.

The field investigator should be on the alert for differences in function as well as in materials and construction details. As with the layout in general, the details within apartments or offices are not as important as the major exit passages and stairwells. The preliminary field investigation should attempt to determine the thickness of all walls. A team introduced below called "thickness design" will depend on an accurate (+ 1/4") determination. Even though this initial field survey is called "preliminary," the data generated should be as accurate and complete as possible.

The field investigator should note the exact location from which his or her observations are recorded. For instance, if a hole is found through a stairwell wall which allows a cataloguing of the construction details, the field investigation notes should reflect the location of the "find". At the preliminary stage it is not necessary to core every wall, though the interior details of construction can usually be determined at some location.

- (v) Structural Frame: There may or may not be a complete skeletal frame, but usually there are columns, beams, trusses, or other elements. The field investigator's task is to locate a place where the dimensions can be measured. These should be indicated on the drawing. For instance, if there are ten inch square columns located on a thirty foot square grid throughout the building, this should be noted. The structural material and cover or protective materials should be identified whenever possible. The thickness of the cover materials should be determined to an accuracy of  $\pm 1/4"$ . As discussed above, the preliminary field survey usually relies on accidental openings in the cover materials rather than a systematic coring technique.

- (vi) Floor/Ceiling Structural Systems: The span between supports should be measured. If possible, a sketch of the cross-section of the system should be made. If there is no location where accidental damage has opened the floor/ceiling construction to visual inspection, it is necessary to make such an opening. An evaluation of the fire resistance of a floor/ceiling assembly requires detailed knowledge of the materials and their arrangement. Special attention should be paid to the cover on structural steel elements and the condition of suspended ceilings and similar membranes.

- (vii) Roofs: The preliminary field survey of roof systems will generally focus mainly on water-tightness. However, once it is apparent that the roof is sound for ordinary use and can be retained in the rehabilitated building, it becomes necessary to evaluate its fire characteristics. The field investigator must measure the thickness and identify the types of materials which have been used. The investigator should be aware that there may be several layers of roof materials.

TABLE B  
PRELIMINARY EVALUATION  
WORKSHEET

Building Element	Required Fire Resistance	Required Flame Spread	Estimated Fire Resistance	Estimated Flame Spread	Possible Upgrade	Possible Equivalent Protection	Notes
Exterior Bearing Walls							
Interior Bearing Walls							
Exterior Non-Bearing Walls							
Interior Non-Bearing Walls or Partitions	A B						
Structural Frame:							
Columns							
Beams							
Other							
Floor/Ceiling Structural System Spanning							
Roofs							
Doors (including frame and hardware):							
a) Enclosed vertical exitway							
b) Enclosed horizontal exitway							
c) Others							

(viii) Doors: The doors to stairways and hallways represent some of the most important fire elements to be considered within a building. The various uses are clearly differentiated in Table A. This should aid the field investigator in making careful measurements of the thickness of door panels and in the determination of the type of core material within each type of door. The presence of a self-closure on a door should be noted and the general operation of the doors should be checked. The latch should engage with the frame, and the hinges should be in good condition. If glass is used in the doors, it should be identified as either plain glass or wired glass.

(ix) Materials: The field investigator should be able to identify ordinary building materials. In situations where an unfamiliar material is found, a sample should be obtained. This sample should measure at least 10 cubic inches so that an ASTM E-136 fire test can be conducted to determine if it is combustible.

(x) Thickness: The thickness of all materials should be measured accurately since, under certain circumstances, the fire resistance rating is very sensitive to the material thickness.

(xi) Condition: The condition of the element and the different layers of materials are important, but at the preliminary stage a subjective judgment is sufficient for this evaluation process.

(xii) Notes: The "Notes" column can be used for many purposes, but it might be a good idea to make specific references to field notes and/or drawings to complement the table.

The next step in the preliminary evaluation is to identify the required fire resistance and flame spread for each of the building elements. These are normally established by the local building code. Then, the fire performance of the existing building elements is determined. A comparison of the required and available ratings will highlight any deficiencies. Ways of either upgrading or replacing deficient construction can then be identified. A suggested work sheet for organizing this information is given below as Table B.

## B Fire Resistance of Existing Building Elements

The fire resistance of the existing building elements can be estimated from the tables and histograms contained in the Appendix. The tables are organized first by type of building element: walls, columns, floor/ceiling assemblies, beams, and doors and door materials. Within each building element, the tables are organized by type of construction (e.g., masonry, metal, wood frame), and then further divided by minimum dimensions or thickness of the building element.

A histogram precedes every table that has 10 or more entries. The X-axis measures fire resistance in hours; the Y-axis shows the number of entries in that table having a given level of fire resistance. The histograms also contain the location of each element within that table for easy cross-referencing.

The histograms, because they are keyed to the tables, can speed the preliminary investigation. For example, Table 1.3.2, "Wood Frame Walls 4" to less than 6" thick", contains 96 entries. Rather than study each table entry, the histogram shows that every wall listed in that table has a fire resistance of less than 2 hours. If the building code required the wall to have a 2-hour rating, the designer, with a minimum of effort, is aware of a problem that requires closer study.

Suppose the code had only required a wall of 1-hour fire resistance. The histogram shows far fewer complying elements (19) than non-complying ones (77). If the existing element is not one of the 19 complying entries, there is a strong possibility the existing element is deficient. The histograms can also be used in the converse situation. If the existing element is not one of the smaller number of entries with a lower than required fire resistance, there is a strong possibility the existing element will be acceptable.

At some point the existing building component must be actually located within the tables. Otherwise, the fire resistance must be determined through one of the techniques presented in Section III of the Guideline. Locating the building component not only guarantees the accuracy of the fire resistance rating, but also provides a source of documentation for the building official.

## C. Effects of Penetrations in Fire Resistant Assemblies

There are often many features in existing walls or floor/ceiling assemblies which were not included in the original certification or fire testing. The most common example is pipes and utility wires passed through holes poked through the assembly. During the life of the building, many penetrations are added and by the time a building is ready for rehabilitation, it is not sufficient to just consider the fire resistance of the assembly as originally constructed. It is necessary to consider all penetrations and

their impact upon fire performance. For instance, the fire resistance of corridor walls is not as important as the effect of plain glass doors or transoms. In fact, doors are the most important single class of penetrations.

A fully involved fire can have a substantial quantity of heat and excess fuel capable of penetrating any holes which might be present in the walls or ceiling of the fire compartment. In general, this leads to a severe degradation of the fire resistance of those elements and to a potential for fire spread. This is particularly applicable to penetrations located high in a compartment where the positive pressure of the fire can force the unburned gases through the penetration.

Open penetrations in a floor/ceiling assembly will generally completely negate the barrier qualities of the assembly, and will lead to rapid spread of fire to the space above. It will not be a problem, however, if the penetrations are filled with noncombustible materials strongly fastened to the structure. The upper half of walls are similar to the floor/ceiling assembly in that a positive pressure can reasonably be expected in the top of the room, and this will push hot and/or burning gases through the penetration unless it is completely sealed.

Building codes require doors installed in fire resistive walls to resist the passage of fire for a specified period of time. If the door to a fully involved room is not closed, a large plume of fire will typically escape through the doorway, preventing anyone from using the space outside the door while allowing the fire to spread. This is why door closers are so important. Glass in doors and transoms can be expected to rapidly shatter unless constructed of wire glass in a steel frame. As with other building components, penetrations or non-rated portions of doors and transoms must be upgraded or otherwise protected.

There are two Tables in Section V of the Appendix pertaining to doors. The first, Table 5.1, contains 41 entries of doors mounted in sound tight-fitting frames. Table 5.2 shows the fire resistance of the wooden door panel materials tested without the stiles and rails, the frame, or the hardware. These panels show substantially greater fire resistance than actual doors containing the same panels. This is due to flames either penetrating the cracks around the edge of the door, or, if that is blocked with intumescent paint, there are usually failures at the hinges or lock-set

## SECTION III

### FINAL EVALUATION AND DESIGN SOLUTIONS

The final evaluation begins after the rehabilitation project has reached the final design stage and the choices made to keep certain archaic materials and assemblies in the rehabilitated building. The specific fire resistance and flame spread requirements are determined for the project. This may involve local building and fire officials reviewing the preliminary evaluation

A "non-standard" small-scale test can be used in special cases. Sample sizes need only be 10-25 sq. ft., while full-scale tests require test samples of either 100 or 180 sq. ft. in size. This small-scale test is best suited for testing non-load bearing assemblies against thermal transmission only.

#### B The Theoretical Approach

There will be instances when certain materials and assemblies in a building undergoing rehabilitation cannot be found in the Appendix Tables. Even in those cases where test results are available for more or less similar construction, the proper classification may not be immediately apparent. Variations in dimensions, loading conditions, materials, or workmanship may markedly affect the performance of the individual building elements, and the extent of such a possible effect cannot be evaluated from the Tables.

Theoretical methods are being developed that offer an alternative to the full-scale fire tests discussed above. These techniques draw upon computer simulation and mathematical modeling, thermodynamics, heat-flow analysis, and materials science to predict the fire performance of building materials and assemblies.

Another theoretical method known as the "Ten Rules of Fire Endurance Ratings" was published by T. Z. Hamathy in the May, 1965 edition of Fire Technology. (35) Using the data from the Appendix as a base, Hamathy's Rules provide a foundation for extending the data to analyze or upgrade current as well as archaic building materials or assemblies.

#### HAMATHY'S TEN RULES

*Rule 1: The "thermal" fire endurance of a construction consisting of a number of parallel layers is greater than the sum of the "thermal" fire endurance characteristic of the individual layers when exposed separately to fire.*

- (1) The performance of an untested assembly can be estimated if the fire endurance of the individual components is known. For under this rule, the endurance of the assembly is greater than the sum of the endurance of the components. The exact rating of the assembly cannot be stated, but a minimum level of performance can be established.

\* The "thermal" fire endurance is the time at which the average temperature on the unexposed side of a construction exceeds its initial value by 250°F when the other side is exposed to the "standard" fire specified by ASTM Test Method E-119.

as depicted on Table A, Table B, and the field drawings and notes. The final evaluation process is essentially a more refined and detailed version of the preliminary evaluation. When necessary, provisions must be made to upgrade existing building components to provide the required level of fire resistance.

This section identifies specific approaches to design solutions that can make possible the continued use of archaic materials and assemblies in the rehabilitated structure. The simplest case occurs when the materials and assembly in question are found within the Appendix Tables and the fire performance properties satisfy current code requirements. Other approaches must be used, though, if the assembly cannot be found within the Tables or the fire performance needs to be upgraded. These approaches have been grouped into two classes: experimental and theoretical.

#### A The Experimental Approach

If the fire resistance rating of a material and/or assembly found in a building is not given in the Appendix Tables of this report, there are several other ways to evaluate its fire performance. One approach is to conduct the appropriate fire test(s) and thereby determine the fire-related properties directly. There are a number of laboratories in the United States which routinely conduct the various fire tests. A current list can be obtained by writing the Center for Fire Research, National Bureau of Standards, Washington, D C 20234.

The contract with any of these testing laboratories should include their observation of specimen preparation as well as the testing of the specimen. A complete description of where and how the specimen was obtained from the building, the transportation of the specimen, and its preparation for testing should be given in detail so that the building official can be satisfied that the fire test is representative of the actual use of the material in the building.

The test report should describe the fire test procedure and the response of the material or assembly. The laboratory usually submits a cover letter with the report to describe the provisions of the fire test that were satisfied by the material or assembly under investigation. A building official will generally require this cover letter, but will also read the report to confirm that the material or assembly complies with the code requirements. Local code officials should be involved in all phases of the testing process.

The experimental approach can be costly and time consuming because specimens must be taken from the building and transported to the testing laboratory. When a load bearing assembly has continuous reinforcement, the test specimen must be removed from the building, transported, and tested in one piece. However, when the fire performance cannot be determined by other means, there may be no alternative to a full-scale test.

- (ii) When a building assembly or component is found to be deficient, the fire endurance can be upgraded by providing a protective membrane. This membrane could be a new layer of brick, plaster, or drywall. The fire endurance of this membrane is called the "finish rating." Tables 1.5.1 and 1.5.2 contain the finish ratings for the most commonly employed materials (See note (ii) to Rule 2).

- (iii) The test criteria for the finish rating is the same as for the thermal fire endurance of the total assembly: average temperature increases of 250°F above ambient or 325°F above ambient at any one place with the membrane being exposed to the fire. The temperature is measured at the interface of the assembly and the protective membrane.

*Rule 2: The fire endurance of a construction does not decrease with the addition of further layers.*

- (i) Hammarby notes that this rule is a consequence of the previous rule. Its validity also follows from the fact that, by the addition of further layers, both the resistance to heat flow and the heat capacity of the construction increase, which, in turn, reduces the rate of temperature rise at the unexposed surface.

- (ii) It should also be noted that this rule is not just restricted to "thermal" performance but includes the other fire test criteria: direct flame passage, cotton waste ignition, and load bearing performance as well. This means that certain restrictions must be imposed on the materials to be added and on the loading conditions. One restriction is that a new layer, if applied to the exposed surface, must not produce additional thermal stresses in the construction, i.e., its thermal expansion characteristics must be similar to those of the adjacent layer. Each new layer must also be capable of contributing enough additional strength to the assembly to sustain the added dead load. If this requirement is not fulfilled, the allowable live load must be reduced by an amount equal to the weight of the new layer. Because of these limitations, this rule should not be applied without careful consideration of these restrictions.

*Rule 3: The fire endurance of constructions containing continuous air gaps or cavities is greater than the fire endurance of similar constructions of the same weight, but containing no air gaps or cavities.*

- (i) By providing for voids in a construction, additional resistances are produced in the path of heat flow. Numerical heat flow analyses indicate that a 10 to 15 percent increase in fire

endurance can be achieved by creating an air gap at the mid-plane of a brick wall. Since the gross volume is also increased by the presence of voids, the air gaps and cavities have a beneficial effect on stability as well. However, constructions containing combustible materials within an air gap may be regarded as exceptions to this rule because of the possible development of burning in the gap.

- (ii) There are numerous examples of this rule in the Tables. For instance:

Table 1.1.4; Item W-8-W-82: Cored concrete masonry, nominal 8" thick wall with one unit in wall thickness and with 62% minimum of solid material in each unit, load bearing (80 PSI). Fire endurance is 2 1/2 hrs.

Table 1.1.5; Item W-10-W-11: Cored concrete masonry, nominal 10" thick wall with two units in wall thickness and a 2" air space, load bearing (80 PSI). The units are essentially the same as item W-8-W-82. Fire endurance is 3 1/2 hrs.

These walls show 1-hour greater fire endurance by the addition of the 2" air space.

*Rule 4: The farther an air gap or cavity is located from the exposed surface, the more beneficial is its effect on the fire endurance.*

- (i) Radiation dominates the heat transfer across an air gap or cavity, and it is markedly higher where the temperature is higher. The air gap or cavity is thus a poor insulator if it is located in a region which attains high temperatures during fire exposure.
- (ii) Some of the clay tile designs take advantage of these factors. The double cell design, for instance, insures that there is a cavity near the unexposed face. Some floor/ceiling assemblies have air gaps or cavities near the top surface and these enhance their thermal performance.

*Rule 5: The fire endurance of a construction cannot be increased by increasing the thickness of a completely enclosed air layer.*

- (i) Hammarby notes that there is evidence that if the thickness of the air layer is larger than about 1/2 inch, the heat transfer through the air layer depends only on the temperature of the bounding surfaces, and is practically independent of the distance between them. This rule is not applicable if the air layer is not completely enclosed, i.e., if there is a possibility of fresh air entering the gap at an appreciable rate.

*Rule 6: Layers of materials of low thermal conductivity are better utilized on that side of the construction on which fire is more likely to happen*

- (i) As in Rule 4, the reason lies in the heat transfer process, but here the conductivity of the solid is much less dependent on the ambient temperature. The low thermal conductor allows a substantial temperature gradient to be established across its thickness under transient heat flow conditions. This rule may not be applicable to materials undergoing physico-chemical changes accompanied by significant heat absorption or heat evolution.

*Rule 7: The fire endurance of asymmetrical constructions depends on the direction of heat flow*

- (i) This rule is a consequence of Rules 4 and 6 as well as other factors. This rule is useful in determining the relative protection of corridors and stairwells from the surrounding spaces. In addition, there are often situations where a fire is more likely, or potentially more severe, from one side or the other.

*Rule 8: The presence of moisture, if it does not result in explosive spalling, increases the fire endurance*

- (i) The flow of heat into an assembly is greatly hindered by the release and evaporation of the moisture found within cementitious materials such as gypsum, portland cement, or magnesium oxychloride. Harmathy has shown that the gain in fire endurance may be as high as 8 percent for each percent (by volume) of moisture in the construction. It is the moisture chemically bound within the construction material at the time of manufacture or processing that leads to increased fire endurance. There is no direct relationship between the relative humidity of the air in the pores of the material and the increase in fire endurance.
- (ii) Under certain conditions there may be explosive spalling of low permeability cementitious materials such as dense concrete. In general, one can assume that extremely old concrete has developed enough minor cracking that this factor should not be significant.

*Rule 9: Load-supporting elements, such as beams, girders and joists, yield higher fire endurance when subjected to fire endurance tests as parts of floor, roof, or ceiling assemblies than they would when tested separately*

- (i) One of the fire endurance test criteria is the ability of a load-supporting element to carry its design load. The

element will be deemed to have failed when the load can no longer be supported.

- (ii) Failure usually results for two reasons. Some materials, particularly steel and other metals, lose much of their structural strength at elevated temperatures. Physical deflection of the supporting element, due to decreased strength or thermal expansion, causes a redistribution of the load forces and stresses throughout the element. Structural failure often results because the supporting element is not designed to carry the redistributed load.
- (iii) Roof, floor and ceiling assemblies have primary (e.g., beams) and secondary (e.g., floor joists) structural members. Since the primary load-supporting elements span the largest distances, their deflection becomes significant at a stage when the strength of the secondary members (including the roof or floor surface) is hardly affected by the heat. As the secondary members follow the deflection of the primary load-supporting element, an increasingly larger portion of the load is transferred to the secondary members.

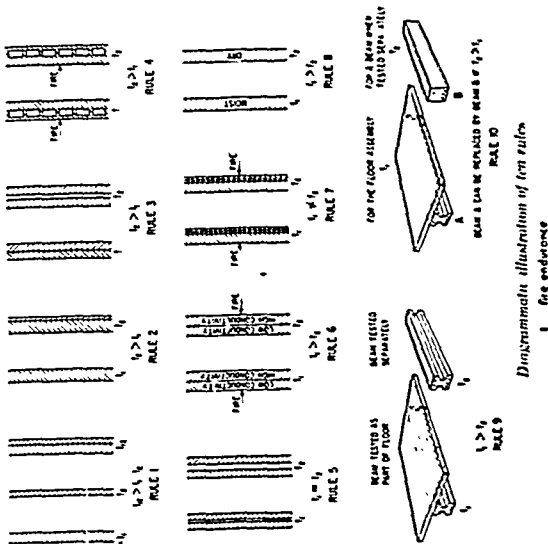
- (iv) When load-supporting elements are tested separately, the imposed load is constant and equal to the design load throughout the test. By definition, no distribution of the load is possible because the element is being tested by itself. Without any other structural members to which the load could be transferred, the individual elements cannot yield a higher fire endurance than they do when tested as parts of a floor, roof or ceiling assembly.

*Rule 10: The load-supporting elements (beams, girders, joists, etc.) of a floor, roof, or ceiling assembly can be replaced by such other load-supporting elements which, when tested separately, yielded fire endurance not less than that of the assembly*

- (i) This rule depends on Rule 9 for its validity. A beam or girder, if capable of yielding a certain performance when tested separately, will obviously yield an equally good or better performance when it forms a part of a floor, roof or ceiling assembly. It must be emphasized that the supporting element of one assembly must not be replaced by the supporting element of another assembly if the performance of this latter element is not known from a separate (beam) test. Because of the load-reducing effect of the secondary elements that results from a test performed on an assembly, the performance of the supporting element alone cannot be evaluated by simple arithmetic. This rule clearly indicates the advantage of performing fire tests on primary load-supporting elements separately.



Hamathy (35) also provided one schematic figure which illustrated his Rules. This is shown below. It should be useful as a quick reference to assist in applying his Rules.



#### Example Applications of Hamathy's Rules

The following examples, based in whole or in part upon those presented in Hamathy's paper (35), show how the Rules can be applied to practical cases.

##### Example 1

###### A. Problem

- (i) A contractor would like to keep a partition which consists of a 3-3/4 inch thick layer of red clay brick, a 1-1/4 inch thick layer of plywood and a 3/8 inch thick layer of gypsum wallboard, at a location where 2-hour fire endurance is required. Is this assembly capable of providing a 2-hour protection?

###### B. Solution

- (i) The answer to the question is yes.
- (ii) According to Rule 10 it is not contrary to common sense to test and classify roofs and supporting elements

###### B. Solution

- (i) This partition does not appear in the Appendix Tables
- (ii) Bricks of this thickness yield fire endurance of approximately 75 minutes (Table 1 1 2, Item W-4-N-2)
- (iii) The 1-1/4 inch thick plywood has a finish rating of 30 minutes
- (iv) The 3/8-inch gypsum wallboard has a finish rating of 10 minutes.

- (v) Using the recommended values from the Tables and applying Rule 1, the fire endurance of the assembly is larger than the sum of the layers, or

$$> 75 + 30 + 10 = 115 \text{ minutes}$$

###### C. Discussion

- (i) This example illustrates how the Appendix Tables can be utilized to determine the fire resistance of assemblies not listed explicitly.

##### Example 2

###### A. Problem

- (i) A number of buildings to be rehabilitated have the same type of roof slab which is supported with different structural elements.
- (ii) The designer and contractor would like to determine whether or not this roof slab is capable of yielding a 2-hour fire endurance. According to a rigorous interpretation of ASTM E-119, however, only the roof assembly, including the roof slab as well as the cover and the supporting elements, can be subjected to a fire test. Therefore, a fire endurance classification cannot be issued for the slabs separately.

- (iii) The designer and contractor believe this slab will yield a 2-hour fire endurance even without the cover, and any beam of at least 2-hour fire endurance may serve as satisfactory support. Is it possible to obtain a classification for the slab separately?

- separately. Furthermore, according to Rule 2, if the roof slabs actually yield a 2-hour fire endurance, the endurance of an assembly, including the slabs, cannot be less than two hours.
- (iii) The recommended procedure would be to review the Tables to see if the slab appears as part of any tested roof or floor/ceiling assembly. The supporting system can be regarded as separate from the slab specimen, and the fire endurance of the assembly listed in the Table is at least the fire endurance of the slab. There would have to be an adjustment for the weight of the roof cover in the allowable load if the test specimen did not contain a cover.
- (iv) The supporting structure or element would have to have at least a 2-hour fire endurance when tested separately.
- C Discussion**
- (i) If the Tables did not include tests on assemblies which contained the slab, one procedure would be to assemble the roof slabs on any convenient supporting system (not regarded as part of the specimen) and to subject them to a load which, besides the usually required superimposed load, includes some allowances for the weight of the cover.

Example 3**A Problem**

- (i) A steel-jointed floor and ceiling assembly is known to have yielded a fire endurance of 1 hour and 35 minutes. At a certain location, a 2-hour endurance is required. What is the most economical way of increasing the fire endurance by at least 25 minutes?

**B Solution**

- (i) The most effective technique would be to increase the ceiling plaster thickness.
- (ii) There may be another technique based on other principles, but an examination of the drawings would be necessary.

**C Discussion**

- (i) The additional plaster has at least three effects:
- a) The layer of plaster is increased and thus there is a gain of fire endurance (Rule 1).

- b) There is a gain due to shifting the air gap farther from the exposed surface (Rule 4).
- c) There is more moisture in the path of heat flow to the structural elements (Rules 7 and 8).

- (ii) The increase in fire endurance would be at least as large as that of the finish rating for the added thickness of plaster. The combined effects in (i) would further increase this by a factor of 2 x or more, depending on the geometry.

Example 4**A Problem**

- (i) The fire endurance of item W-10-M-1 in Table 1.1.5 is 4-hours. This wall consists of two 3-3/4 inch thick layers of structural tiles separated by a 2 inch air gap and 3/4" portland cement plaster or stucco on both sides. If the actual wall in the building is identical to item W-10-M-1 except that it has a 4 inch air gap, can the fire endurance be estimated at 5 hours?

**B Solution**

- (i) The answer to the question is no.
- (ii) Reason contained in Rule 5.

Example 5**A Problem**

- (i) In order to increase the insulating value of its precast roof slabs, a company has decided to make the slabs using two layers of different concretes. The lower layer of the slabs, where the strength of the concrete is immaterial (all the tensile load is carried by the steel reinforcement), is now made from a concrete of low strength but good insulating value. For the upper layer, where the concrete is supposed to carry the compressive load, the original high strength, high thermal conductivity concrete has been retained. How will the fire endurance of the slabs be affected by the change?

**B Solution**

The effect on the thermal fire endurance is beneficial:

- (i) The total resistance to heat flow of the new slabs has been increased due to the replacement of a layer of high thermal conductivity by one of low conductivity.

The following approaches (i) through (iii) shall be considered equivalent

(i) The fire resistance of a building element can be established from the Appendix Tables. This is subject to the following limitations:

- a The building element in the rehabilitated building shall be constructed of the same materials with the same nominal dimensions as stated in the Tables
  - b All penetrations in the building element or its cover for services such as electricity, plumbing, and HVAC shall be packed with noncombustible cementitious materials and so fixed that the packing material will not fall out when it loses its water of hydration
  - c The effects of age and wear and tear shall be repaired so that the building element is sound and the original thickness of all components, particularly covers and floor slabs, is maintained
- (ii) The fire resistance of a building element which does not explicitly appear in the Appendix Tables can be established if one or more elements of same design but different dimensions have been listed in the Tables. For walls, the existing element must be thicker than the one listed in the Table. The fire resistance of the thicker wall shall be considered that of the thinner wall which appears in the Table. For floor/ceiling assemblies, the assembly listed in the Table must have the same or less cover and the same or thinner slab constructed of the same material as the actual floor/ceiling assembly. For other structural elements, the element listed in the Table must be of a similar design but with less cover thickness. The fire resistance in all instances shall be the fire resistance rating recommended in the Table. This is subject to the following limitations:

- a The actual element in the rehabilitated building shall be constructed of the same materials as listed in the Table. Only the following dimensions may vary from those specified: for walls, the overall thickness must exceed that specified in the table; for floor/ceiling assemblies, the thickness of the cover and the slab must be greater than, or equal to, that specified in the table; for other structural elements, the thickness of the cover must be greater than that specified in the table.
- b All penetrations in the building element or its cover for services such as electricity, plumbing, or HVAC shall be packed with noncombustible cementitious materials and so fixed that the packing material will not fall out when it loses its water of hydration.

(iii) The layer of low conductivity is on the side more likely to be exposed to fire, where it is more effectively utilized according to Rule 6. The layer of low thermal conductivity also provides better protection for the steel reinforcement; therefore, the time of attaining the temperature at which the creep of steel becomes significant will be extended

#### C "Thickness Design" Strategy

If a given wall does not appear in the Tables, a rehabilitation designer can utilize a "thickness design" strategy for walls which is based on Hamathy's Rules 1 and 2

This "thickness design" approach is used when the materials have been identified and measured, but the specific wall is not included in the Tables. The first step is to survey thinner walls to see if the same materials have been fire tested and if thinner walls have yielded the desired or greater fire endurance. If that is the case, then the thicker walls in the building have more than enough fire resistance. The thickness of the walls thus becomes the principal concern

This approach can also be used for floor/ceiling assemblies, except that the thickness of the cover \* and the slab become the central concern. The fire resistance of assemblies with less cover and/or thinner slabs that are listed in the Tables can be used. For other structural elements (e.g., beams and columns), the element listed in the Table must be of a similar design but with less cover thickness

#### Section IV

##### SUMMARY GUIDELINE

After the preliminary evaluation has been documented and a rehabilitation project is in the final design process, the need arises for specific guidelines for the evaluation of the fire-related performance of existing building elements. This section summarizes the various approaches and design solutions discussed in the preceding Sections.

The term "structural system" includes: frames, beams, columns, and other structural elements. "Cover" has the meaning defined below: a protective layer(s) of materials or membrane which slows the flow of heat to the structural elements.

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\* cover: the protective layer or membrane of material which slows the flow of heat to the structural elements.

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- c The effects of age and wear and tear shall be repaired so that the building element is sound and the original thickness of all components, particularly covers and floor slabs, is maintained.
- (iii) The fire resistance of building elements can be established by applying Hamathy's Ten Rules of Fire Resistance Ratings as set forth in Section III. This is subject to the following limitations:
- a The data from the Tables can be utilized with the limitations a through c. from Guideline (i) above
  - b Test reports from recognized journals or published papers can be used to support data utilized in applying Hamathy's rules
  - c Calculations utilizing recognized and well established computational techniques can be used in applying Hamathy's Rules. These include, but are not limited to, analysis of heat flow, mechanical properties, deflections, and load bearing capacity

COMMENTARY

- (i) Guideline (i) essentially follows the approach taken by model building codes. The assembly must appear in a table either published in or accepted by the code for a given fire resistance rating to be recognized and accepted
- (ii) Guideline (ii) is an application of the "thickness design" concept presented in Section III. There should be many instances when a thicker building element was utilized than the one listed in the Appendix Tables. This Guideline recognizes the inherent superiority of a thicker design. Note: "thickness design" for floor/ceiling assemblies and structural elements refers to cover and slab thickness rather than total thickness
- (iii) The "thickness design" concept is essentially a special case of Guideline (iii) which takes special cognizance of Hamathy's Ten Rules (specifically Rules 1 and 2). It should be recognized that the only source of data for Guideline (ii) is the Appendix Tables. If other data is used, it must be in connection with Guideline (iii)
- (iv) The fire endurance of actual building elements can be greatly reduce or totally negated by removing part of the cover to allow pipes, ducts, or conduits to pass through the element. This must be repaired in the rehabilitation process

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## APPENDIX

## TABLE OF CONTENTS

		Page
Introduction		A- 1
Section I - Walls		
Table 1.1.1 - Masonry	0" to less than 4" thick	A- 2
Table 1.1.2 - Masonry	4" to less than 6" thick	A- 5
Table 1.1.3 - Masonry	6" to less than 8" thick	A-12
Table 1.1.4 - Masonry	8" to less than 10" thick	A-18
Table 1.1.5 - Masonry	10" to less than 12" thick	A-25
Table 1.1.6 - Masonry	12" to less than 14" thick	A-28
Table 1.1.7 - Masonry	14" or more thick	A-33
Table 1.2.1 - Metal Frame	0" to less than 4" thick	A-36
Table 1.2.2 - Metal Frame	4" to less than 6" thick	A-39
Table 1.2.3 - Metal Frame	6" to less than 8" thick	A-41
Table 1.2.4 - Metal Frame	8" to less than 10" thick	A-42
Table 1.3.1 - Wood Frame	0" to less than 4" thick	A-43
Table 1.3.2 - Wood Frame	4" to less than 6" thick	A-44
Table 1.3.3 - Wood Frame	6" to less than 8" thick	A-51
Table 1.4.1 - Miscellaneous Materials	0" to less than 4" thick	A-52
Table 1.4.2 - Miscellaneous Materials	4" to less than 6" thick	A-52
Table 1.5.1 - Finish Ratings	Inorganic Materials - thickness	A-53
Table 1.5.2 - Finish Ratings	Organic Materials - thickness	A-54
Section II - Columns		
Table 2.1.1 - Reinforced Concrete Columns	Minimum Dimension 0" to less than 6"	A-55
Table 2.1.2 - Reinforced Concrete Columns	Minimum Dimension 10" to less than 12"	A-56
Table 2.1.3 - Reinforced Concrete Columns	Minimum Dimension 12" to less than 14"	A-59
Table 2.1.4 - Reinforced Concrete Columns	Minimum Dimension 14" to less than 16"	A-60
Table 2.1.5 - Reinforced Concrete Columns	Minimum Dimension 16" to less than 18"	A-61
Table 2.1.6 - Reinforced Concrete Columns	Minimum Dimension 18" to less than 20"	A-63
Table 2.1.7 - Reinforced Concrete Columns	Minimum Dimension 20" to less than 22"	A-64
Table 2.1.8 - Hexagonal Reinforced Concrete Columns	Diameter - 12" to less than 14"	A-66
Table 2.1.9 - Hexagonal Reinforced Concrete Columns	Diameter - 14" to less than 16"	A-66
Table 2.1.10 - Hexagonal Reinforced Concrete Columns	Diameter - 16" to less than 18"	A-67
Table 2.1.11 - Hexagonal Reinforced Concrete Columns	Diameter - 20" to less than 22"	A-67

## TABLE OF CONTENTS (cont'd)

		Page
Table 2.2 - Round Cast Iron Column	Minimum Dimension	A-68
Table 2.3 - Steel Columns - Gypsum Encasements	Minimum Area of Solid Material	A-69
Table 2.4 - Timber Columns	Minimum Dimension	A-69
Table 2.5.1.1 - Steel Columns/Concrete Encasements	Minimum Dimension less than 6"	A-70
Table 2.5.1.2 - Steel Columns/Concrete Encasements	Minimum Dimension 6" to less than 8"	A-70
Table 2.5.1.3 - Steel Columns/Concrete Encasements	Minimum Dimension 8" to less than 10"	A-71
Table 2.5.1.4 - Steel Columns/Concrete Encasements	Minimum Dimension 10" to less than 12"	A-73
Table 2.5.1.5 - Steel Columns/Concrete Encasements	Minimum Dimension 12" to less than 14"	A-76
Table 2.5.1.6 - Steel Columns/Concrete Encasements	Minimum Dimension 14" to less than 16"	A-78
Table 2.5.1.7 - Steel Columns/Concrete Encasements	Minimum Dimension 16" to less than 18"	A-80
Table 2.5.2.1 - Steel Columns/Plaster Encasements	Minimum Dimension 10" to less than 12"	A-81
Table 2.5.2.2 - Steel Columns/Brick & Block Encasements	Minimum Dimension 12" to less than 14"	A-82
Table 2.5.2.3 - Steel Columns/Brick & Block Encasements	Minimum Dimension 14" to less than 16"	A-82
Table 2.5.3.1 - Steel Columns/Plaster Encasements	Minimum Dimension 6" to less than 8"	A-83
Table 2.5.3.2 - Steel Columns/Plaster Encasements	Minimum Dimension 8" to less than 10"	A-83
Table 2.5.4.1 - Steel Columns/Miscellaneous Encasements	Minimum Dimension 6" to less than 8"	A-84
Table 2.5.4.2 - Steel Columns/Miscellaneous Encasements	Minimum Dimension 8" to less than 10"	A-84
Table 2.5.4.3 - Steel Columns/Miscellaneous Encasements	Minimum Dimension 10" to less than 12"	A-85
Table 2.5.4.4 - Steel Columns/Miscellaneous Encasements	Minimum Dimension 12" to less than 14"	A-85

## TABLE OF CONTENTS (cont'd)

		Page
Section III - Floor Ceiling Assemblies		
Table 3.1 - Reinforced Concrete	Assembly thickness	A-86
Table 3.2 - Steel Structural Elements	Membrane thickness	A-91
Table 3.3 - Wood Joist	Membrane thickness	A-96
Table 3.4 - Hollow Clay Tile with Reinforced Concrete	Assembly thickness	A-100
Table 3.5 - Steel Structural Elements/Non-standard Tests (above floor burnout tests)	Minimum dimension	A-102
Section IV - Beams		
Table 4.1.1 - Reinforced Concrete	Depth 10" to less than 12"	A-103
Table 4.1.2 - Reinforced Concrete	Depth 12" to less than 14"	A-105
Table 4.1.3 - Reinforced Concrete	Depth 14" to less than 16"	A-106
Table 4.2.1 - Steel Beams/Unprotected	Depth 10" to less than 12"	A-107
Table 4.2.2 - Steel Beams/Concrete Protection	Depth 10" to less than 12"	A-107
Section V - Doors and Door Materials		
Table 5.1 - Resistance of Doors to Fire Exposure	Thickness	A-108
Table 5.2 - Resistance of Door Materials to Fire Penetration	Thickness	A-111

## SECTION I

## WALLS

## INTRODUCTION

The tables and histograms which follow are to be used only within the analytical framework detailed in the main body of this Guideline.

Histograms precede any table with 10 or more entries. The use and interpretation of these histograms is explained in Section II of the Guideline. The tables are in a format similar to that found in the model building codes. The following example, taken from an entry in Table 1.1.2, best explains the table format.

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-M-50	4-5/8"	Core: structural clay tile; See notes 12,16,21; Facings on unexposed side only; see note 18.	n/a	25 min.		1		3, 4, 24	1/3

- Item Code: The item code consists of a four place series in the general form w-x-y-z in which each member of the series denotes the following:  
w = Type of building element (e.g. W=Walls; F=Floors, etc.)  
x = The building element thickness rounded down to the nearest one inch increment (e.g. 4-5/8" is rounded off to 4")  
y = The general type of material from which the building element is constructed (e.g. M=Masonry; W=Wood, etc.)  
z = The item number of the particular building element in a given table

The item code shown in the example W-4-M-50 denotes the following:

W = wall, as the building element  
4 = wall thickness in the range of 4" to less than 5"  
M = Masonry construction  
50 = The 50th entry in Table 1.1.2

- The specific name or heading of this column identifies the dimension which, if varied, has the greatest impact on fire resistance. The critical dimension for walls, the example here, is thickness. It is different for other building elements (e.g. depth for beams; membrane thickness for some floor/ceiling assemblies). The table entry is the named dimension of the building element measured at the time of actual testing to within  $\pm 1/8$ " tolerance.
- Construction Details: The construction details provide a brief description of the manner in which the building element was constructed.
- Performance: This heading is subdivided into two columns. The column labeled "Load" will either list the load that the building element was subjected to during the fire test or it will contain a note number which will list the load and any other significant details. If the building element was not subjected to a load during the test this column will contain "n/a" which means "not applicable".  
  
The second column under performance is labeled "Time" and denotes the actual fire endurance time observed in the fire test.
- Reference Number: This heading is subdivided into three columns: Pre-BMS-92; BMS-92; and Post BMS-92. The table entry under this column is the number in the Bibliography of the original source reference for the test data.
- Notes: Notes are provided at the end of each table to allow a more detailed explanation of certain aspects of the test. In certain tables the notes given in this column have also been listed under the "Construction Details" and/or "Load" columns.
- Rec Hours: This column lists the recommended fire endurance rating, in hours, of a building element. In some cases, the recommended fire endurance will be less than that listed under the "Time" column. In no case is the "Rec Hours" greater than given in the "Time" column.

FIGURE 1.1.1

## WALLS - MASONRY

Thickness - 4" or less

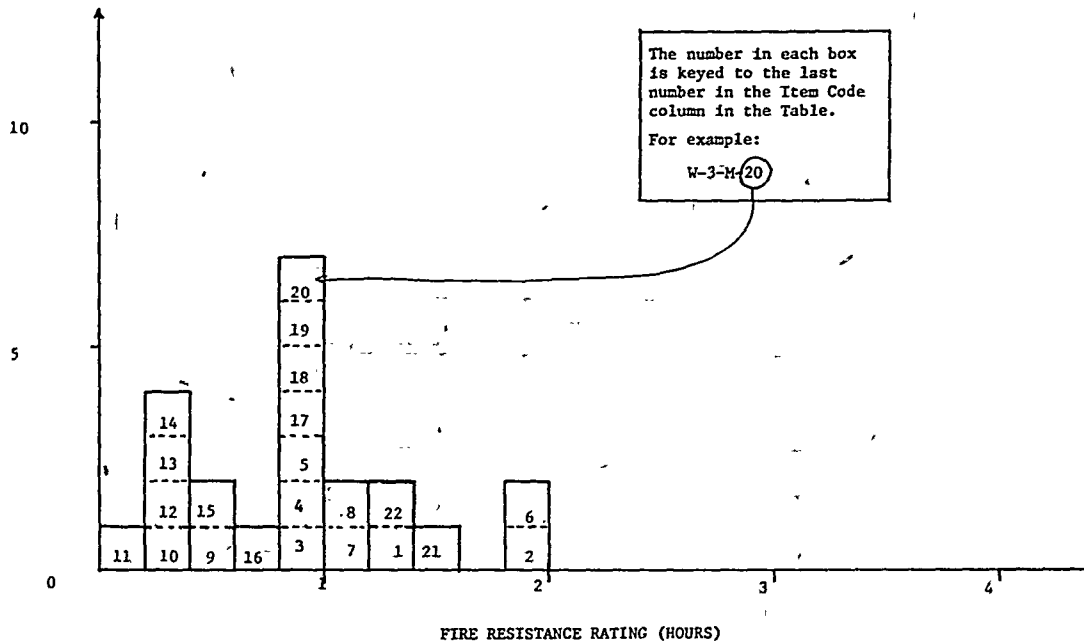
NUMBER OF  
ASSEMBLIES

TABLE 1.1.1

## MASONRY WALLS

Walls Less Than 4" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-2-M-1	2 1/2"	Solid partition; 3/4" gypsum plank - 10' x 1'6"; 3/4" + gypsum plaster each side.	n/a	1 hr. 22min			7	1	1-1/4
W-3-M-2	3"	Concrete block (18"x 9"x 3") of fuel ash, portland cement and plasticizer; Cement/sand mortar.	n/a	2 hr.			7	2,3	2
W-2-M-3	2"	Solid gypsum block wall; No facings.	n/a	1 hr.		1		4	1
W-3-M-4	3"	Solid gypsum blocks, laid in 1:3 sanded gypsum mortar	n/a	1 hr.		1		4	1
W-3-M-5	3"	Magnesium oxysulfate wood fiber blocks; 2" thick; Laid in portland cement-lime mortar; Facings: 1/2" of 1:3 sanded gypsum plaster on both sides.	n/a	1 hr.		1		4	1
W-3-M-6	3"	Magnesium oxysulfate bound wood fiber blocks; 3" thick; Laid in portland cement-lime mortar; Facings: 1/2" of 1:3 sanded gypsum plaster on both sides.	n/a	2 hr.		1		4	2
W-3-M-7	3"	Clay tile; Ohio fire clay; single cell thick; Face plaster 5/8" (both sides) 1:3 sanded gypsum; Construction "A"; Design E.	n/a	1 hr. 6 min.			2	5,6,7,11,12,39	1



1.1.1 (cont'd)  
Walls Less Than 4" Thick

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-RMS-92	RMS-92	Post-RMS-92		
W-3-M-8	3"	Clay tile; Illinois surface clay; single cell thick; face plaster 5/8" (both sides) 1:3 sanded gypsum; Design A; Construction "E".	n/a	1 hr 1 min			2	5,8,9 11,12 39	
W-3-M-9	3"	Clay tile; Illinois surface clay; single cell thick; no face plaster; Construction "C", Design "A".	n/a	25min			2	5,10 11,12 39	1/3
W-3-M-10	3-7/8"	8"x 4-7/8" glass blocks; weight 4 lb. each; portland cement-lime mortar; horizontal mortar joints reinforced with metal lath.	n/a	15min		1		4	1/4
W-3-M-11	3"	Core: Structural clay tile; See notes 14,18,23 No facings.	n/a	10min		1		5,11, 26	1/6
W-3-M-12	3"	Core: Structural clay tile; See notes 14,19,23 No facings.	n/a	20min		1		5,11, 26	1/3
W-3-M-13	3-5/8"	Core: Structural clay tile; See notes 14,18,23 Facings on unexposed side per note 20.	n/a	20min		1		5,11, 26	1/3
W-3-M-14	3-5/8"	Core: Structural clay tile; See notes 14,19,23 Facings on unexposed side only per note 20.	n/a	20min		1		5,11 26	1/3
W-3-M-15	3-5/8"	Core: Clay structural tile; See notes 14,18,23 Facings on side exposed to fire per note 20.	n/a	30min		1		5,11 26	1/2
W-3-M-16	3-5/8"	Core: Clay structural tile; See notes 14,19,23 Facing on side exposed to fire per note 20.	n/a	45min		1		5,11 26	3/4
W-2-M-17	2"	2" thick solid gypsum blocks; See note 27.	n/a	1 hr.		1		27	1
W-3-M-18	3"	Core: 3" thick gypsum blocks 70% solid; See note 2.; No facings.	n/a	1 hr.		1		27	1
W-3-M-19	3"	Core: Hollow concrete units; See notes 29,35,36,38; No facings.	n/a	1 hr.		1		27	1
W-3-M-20	3"	Core: Hollow concrete units; See notes 28,35,36,37,38; No facings.	n/a	1 hr.		1			1
W-3-M-21	3 1/2"	Core: Hollow concrete units; See notes 28,35,36,37,38; Facings on one side, see note 37.	n/a	1 1/4 hr.		1			1 1/4
W-3-M-22	3 1/2"	Core: Hollow concrete units; See notes 29,35,36,38; Facings on one side per note 37.	n/a	1 1/4 hr.		1			1 1/4

TABLE 1.1.1

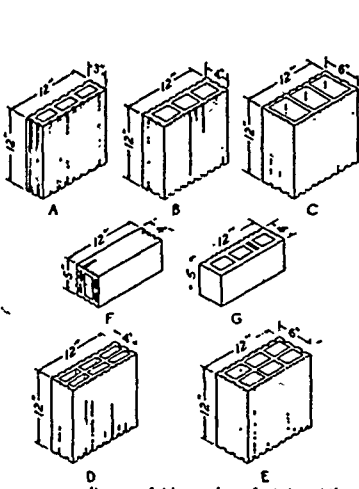
## NOTES

1. Failure mode - flame thru
2. Passed 2 hr. fire test (Grade "C" fire res. - British).
3. Passed hose stream test.
4. Tested at NBS under ASA Spec. No. A2-1934. As non-load bearing partitions.
5. Tested at NBS under ASA Spec. No. 42-1934 (ASTM C-19-33) except that hose stream testing where carried out was run on test specimens exposed for full test duration, not for a reduced period as is contemporarily done.
6. Failure by thermal criteria - maximum temperature rise 1810C (3250F).
7. Hose stream failure.
8. Hose stream - pass.
9. Specimen removed prior to any failure occurring.
10. Failure mode - collapse.
11. For clay tile walls, unless the source of the clay can be positively identified, it is suggested that the most pessimistic hour rating for the fire endurance of a clay tile partition of that thickness be followed. Identified sources of clay showing longer fire endurance can lead to longer time recommendations.
12. See appendix for construction and design details for clay tile walls.

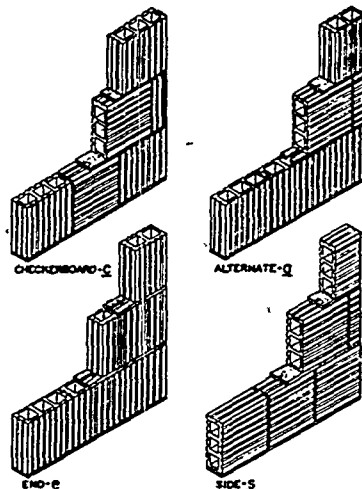
## 1.1.1 (cont'd)

## NOTES

13. Load - 80 PSI for gross wall area.
14. One cell in wall thickness.
15. Two cells in wall thickness.
16. Double shells plus one cell in wall thickness.
17. One cell in wall thickness, cells filled with broken tile, crushed stone, slag cinders or sand mixed with mortar.
18. Dense hard-burned clay or shale tile.
19. Medium-burned clay tile.
20. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
21. Units of not less than 30% solid material.
22. Units of not less than 40% solid material.
23. Units of not less than 50% solid material.
24. Units of not less than 45% solid material.
25. Units of not less than 60% solid material.
26. All tiles laid in portland cement-lime mortar.
27. Blocks laid in 1:3 sanded gypsum mortar voids in blocks not to exceed 30%.
28. Units of expanded slag or pumice aggregates.
29. Units of crushed limestone, blast furnace slag, cinders and expanded clay or shale.
30. Units of calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
31. Units of siliceous sand and gravel. 90% or more quartz, chert or flint.
32. Unit at least 49% solid.
33. Unit at least 62% solid.
34. Unit at least 65% solid.
35. Unit at least 73% solid.
36. Ratings based on one unit and one cell in wall thickness.
37. Minimum of 1/2" - 1:3 sanded gypsum plaster.
38. Non-load bearing.
39. See Clay Tile Partition Design Construction drawings, below.



Designs of tiles used in fire-test partitions.



The four types of construction used in fire-test partitions.

FIGURE 1.1.2

## WALLS - MASONRY

Thickness 4" to Less Than 6"

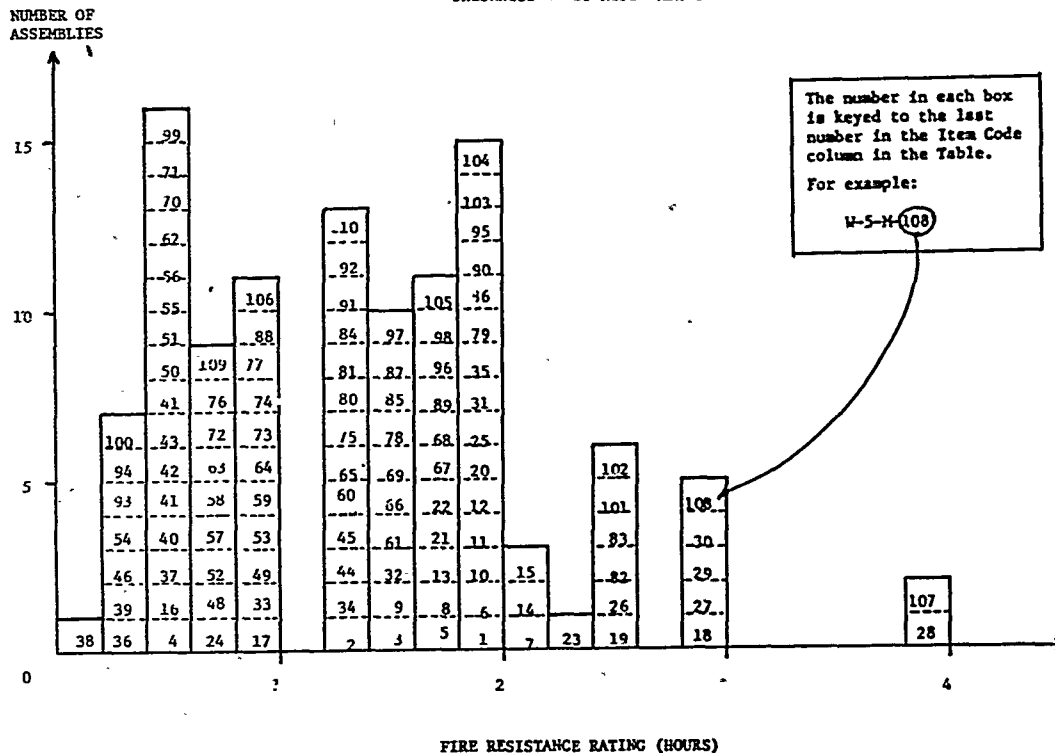


TABLE 1.1.2

## MASONRY WALLS

Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-M-1	4"	Solid 3" thick, gypsum blocks laid in 1:3 sanded gypsum mortar; Facings: 1/2" of 1:3 sanded gypsum plaster(both sides).	n/a	2 hr.		1		1	2
W-4-M-2	4"	Solid clay or shale brick.	n/a	1 hr. 15min		1		1,2	1-1/4
W-4-M-3	4"	Concrete; No facings.	n/a	1 hr. 30min		1		1	1 1/2
W-4-M-4	4"	Clay tile; Illinois surface clay; Single cell thick; No face plaster; Constr. "C"; Design "B".	n/a	25min			2	3-7 36	1/3
W-4-M-5	4"	Solid sand-lime brick	n/a	1 hr. 45min		1		1	1-3/4
W-4-M-6	4"	Solid wall; 3" thick block; 1/2" plaster each side; 17-3/4"x 8-3/4" x 3" "Breeze Blocks"; portland cement/sand mortar.	n/a	1 hr. 52min			7	2	1-3/4
W-4-M-7	4"	Concrete (4020 PSI); Reinforcement: Vertical 3/8"; horizontal 1/2"; 6"x 6" grid;	3.4 tons/foot	2 hr. 10min			7	2	2

## 1.1.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hour
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-M-8	4"	Concrete wall(4340 PSI Crush); Reinforcement: $\frac{1}{4}$ " diameter rebar on 8" centers (vertical and horizontal);	n/a	1 hr. 40min.			7	2	1-2/3
W-4-M-9	4-3/16"	4-3/16"x 2-5/8" cellular fletton brick (1873 PSI) with $\frac{1}{4}$ " sand mortar; bricks are U-shaped yielding hollow cover (approx. 2"x 4") in final (cross-section) configuration.	n/a	1 hr. 25min.			7	2	1-1/3
W-4-M-10	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "x 2 $\frac{1}{2}$ " fletton (1831 PSI) brick in $\frac{1}{4}$ " sand mortar.	n/a	1 hr. 53min.			7	2	1-3/4
W-4-M-11	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "x 2 $\frac{1}{2}$ " London stock (683 PSI) brick; $\frac{1}{4}$ " grout.	n/a	1 hr. 52min.			7	2	1-3/4
W-4-M-12	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " Leicester Red, Wire-cut brick (4465 PSI) in $\frac{1}{4}$ " sand mortar.	n/a	1 hr. 56min.			7	6	1-3/4
W-4-M-13	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " Stairfoot brick (7527 PSI) $\frac{1}{4}$ " sand mortar.	n/a	1 hr. 37min.			7	2	1 $\frac{1}{2}$
W-4-M-14	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "x 2 $\frac{1}{2}$ " Sandlime brick (2603 PSI) $\frac{1}{4}$ " sand mortar.	n/a	2 hr. 6 min.			7	2	2
W-4-M-15	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "x 2 $\frac{1}{2}$ " concrete brick (2527 PSI) 1/2" sand mortar.	n/a	2 hr. 10min.			7	2	2
W-4-M-16	4 $\frac{1}{2}$ "	4" thick clay tile; Ohio Fire Clay; Single cell thick; No plaster exposed face; $\frac{1}{2}$ " 1:2 gypsum back face; Constr. "S"; Design "P".	n/a	31min.			2	3-6 36	$\frac{1}{2}$
W-4-M-17	4 $\frac{1}{2}$ "	4" thick clay tile; Ohio fire clay; Single cell thick; plaster exposed face: $\frac{1}{2}$ "; 1:2 sanded gypsum; back face: none; Design "S"; Constr. "S".	80 PSI	50min.			2	3-5,8 36	3/4
W-4-M-18	4 $\frac{1}{2}$ "	Core: Solid sand-lime brick; 1/2" sanded gypsum plaster facings on both sides.	80 PSI	3 hr.		1		1,11	3
W-4-M-19	4 $\frac{1}{2}$ "	Core: Solid sand-lime brick; $\frac{1}{4}$ " sanded gypsum plaster facings on both sides.	80 PSI	2 hr. 30min.		1		1,11	2 $\frac{1}{2}$
W-4-M-20	4 $\frac{1}{2}$ "	Core: Concretebrick $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	80 PSI	2 hr.		1		1,11	2
W-4-M-21	4 $\frac{1}{2}$ "	Core: Solid clay or shale bricks; $\frac{1}{2}$ " thick, 1:3 sanded gypsum plaster facings on fire sides.	80 PSI	1 hr. 45 min.		1		1,2 11	1-3/4
W-4-M-22	4-3/4"	4" thick clay tile; Ohio fire clay; single cell thick; cells filled with cement and broken tile concrete; plaster on exposed face; none on unexposed face; 3/4" 1:3 sanded gypsum; Constr. "E"; Design "G".	n/a	1 hr. 48 min.			2	2,3-5, 9 36	1-3/4
W-4-M-23	4-3/4"	4" thick clay tile; Ohio fire clay; single cell thick; cells filled with cement and broken tile concrete; no plaster exposed face; 3/4" neat gypsum plaster on unexposed face; Design "G"; Constr. "E".	n/a	2 hr. 14 min.			2	2,3-5, 9 36	2
W-5-M-24	5"	3"x 13" airspace; 1" thick metal reinforced concrete facings on both sides; faces connected 1b/ft. with wood spines.	2,250 lb/ft.	45min.		1		1	3/4
W-5-M-25	5"	Core: 3" thick void filled with "nodulated" mineral wool weighing 10 lbs/ft <sup>3</sup> ; 1" thick metal reinforced concrete facings on both sides.	2,250 lb/ft	2 hr.		1		1	2
W-5-M-26	5"	Core: Solid clay or shale brick; $\frac{1}{2}$ " thick, 1:3 sanded gypsum plaster facings on both sides.	40 PSI	2 hr. 30min.		1		1,2 11	2 $\frac{1}{2}$
W-5-M-27	5"	Core: Solid 4" thick gypsum blocks, laid in 1:3 sanded gypsum mortar; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	n/a	3 hr.		1		1	3
W-5-M-28	5"	Core: 4" thick hollow gypsum blocks with 30% voids; blocks laid in 1:3 sanded gypsum mortar. No facings.	n/a	4 hr.		1		1	4
W-5-M-29	5"	Core: concrete brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	160 PSI	3 hr.		1		1	3

## 1.1.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-M-30	5½"	4" thick clay tile; Illinois surface clay; double cell thick; plaster - 5/8" thick sanded gypsum 1:3 both faces; Design "T"; Constr. "C".	n/a	2 hr. 53min.			2	2-5,9 36	2-3/4
W-5-M-31	5½"	4" thick clay tile; New Jersey fire clay; double cell thick; plaster - 5/8" sanded gypsum 1:3 both faces; Design "D"; Constr. "S".	n/a	1 hr. 52min.			2	2-5,9 36	1-3/4
W-5-M-32	5½"	4" thick clay tile; New Jersey fire clay; single cell thick; 5/8" plaster on both sides; 1:3 sanded gypsum; Design "D"; Constr. "S".	n/a	1 hr. 34min.			2	2-5,9 36	1½
W-5-M-33	5½"	4" thick clay tile; New Jersey Fire Clay; single cell thick; face plaster - 5/8" both sides; 1:3 sanded gypsum; Constr. "S"; Design "B".	n/a	50min.			2	3-5,8 36	3/4
W-5-M-34	5½"	4" thick clay tile; Ohio fire clay; single cell thick; face plaster - 5/8" both sides; 1:3 sanded gypsum; Constr. "A"; Design "B".	n/a	1 hr. 19min.			2	2-5,9 36	1½
W-5-M-35	5½"	4" thick clay tile; Illinois Surface Clay; single cell thick; face plaster - 5/8" both sides; 1:3 sanded gypsum; Constr. "S"; Design "B".	n/a	1 hr. 59min.			2	2-5, 10 36	1-3/4
W-4-M-36	4"	Core: Structural clay tile; See notes 12,16,21. No facings.	n/a	15min.		1		3,4, 24	½
W-4-M-37	4"	Core: structural clay tile; See notes 12,17,21. No facings.	n/a	25min.		1		3,4, 24	1/3
W-4-M-38	4"	Core: structural clay tile; See notes 12,16,20. No facings.	n/a	10 min.		1		3,4, 24	1/6
W-4-M-39	4"	Core: structural clay tile; See notes 12,17,20. No facings.	n/a	20 min.		1		3,4, 24	1/3
W-4-M-40	4"	Core: structural clay tile; See notes 13,16,23. No facings.	n/a	30 min.		1		3,4 24	½
W-4-M-41	4"	Core: structural clay tile; See notes 13,17,23. No facings.	n/a	35 min.		1		3,4, 24	½
W-4-M-42	4"	Core: structural clay tile; See notes 13,16,21. No facings.	n/a	25 min.		1		3,4, 24	1/3
W-4-M-43	4"	Core: structural clay tile; See notes 13,17,21. No facings.	n/a	30 min.		1		3,4, 24	1/2
W-4-M-44	4"	Core: structural clay tile; see notes 15,16,20. No facings.	n/a	1 hr. 15 min.		1		3,4 24	1½
W-4-M-45	4"	Core: structural clay tile; See notes 15,17,20. No facings.	n/a	1 hr. 15 min.		1		3,4 24	1½
W-4-M-46	4"	Core: structural clay tile; See notes 14,16,22. No facings.	n/a	20 min.		1		3,4, 24	1/3
W-4-M-47	4"	Core: structural clay tile; See notes 14,17,22. No facings.	n/a	25 min.		1		3,4 24	1/3
W-4-M-48	4½"	Core: clay structural tile; See notes 12,16,21. Facings on both sides; see note 18.	n/a	45 min.		1		3,4 24	3/4
W-4-M-49	4½"	Core: clay structural tile; See notes 12,17,21. Facings on both sides; see note 18.	n/a	1 hr.		1		3,4 24	1
W-4-M-50	4-5/8"	Core: structural clay tile; See notes 12,16,21. Facings on unexposed side only; see note 18.	n/a	25 min.		1		3,4, 24	1/3

## 1.1.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rac Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-M-51	4-5/8"	Core: structural clay tile; See notes 12,17,21; Facings on unexposed side only; see note 18.	n/a	30 min		1		3,4, 24	1/2
W-4-M-52	4-5/8"	Core: structural clay tile; See notes 12,16,21; Facings exposed side only; See note 18.	n/a	45 min		1		3,4, 24	3/4
W-4-M-53	4-5/8"	Core: structural clay tile; See notes 12,17,21; Facings: fire side only; see note 18.	n/a	1 hr.		1		3,4, 24	1
W-4-M-54	4-5/8"	Core: structural clay tile; See notes 12,16,20; Facings on unexposed side; see note 18.	n/a	20 min		1		3,4, 24	1/3
W-4-M-55	4-5/8"	Core: structural clay tile; See notes 12,17,20; Facings: on unexposed side; see note 18.	n/a	25 min		1		3,4, 24	1/3
W-4-M-56	4-5/8"	Core: structural clay tile; See notes 12,16,20; Facings on fire side only; see note 18.	n/a	30 min		1		3,4, 24	1/2
W-4-M-57	4-5/8"	Core: structural clay tile; See notes 12,17,20; Facings on fire side only; see note 18.	n/a	45 min		1		3,4, 24	3/4
W-4-M-58	4-5/8"	Core: structural clay tile; See notes 13,16,23; Facings on unexposed side only; see note 18.	n/a	40 min		1		3,4, 24	2/3
W-4-M-59	4-5/8"	Core: structural clay tile; See notes 13,17,23; Facings: on unexposed side only; see note 18.	n/a	1 hr.		1		3,4, 24	1
W-4-M-60	4-5/8"	Core: structural clay tile; See notes 13,16,23; Facings on fire side only; see note 18.	n/a	1 hr. 15 min		1		3,4, 24	1 1/2
W-4-M-61	4-5/8"	Core: structural clay tile; See notes 13,17,23; Facings on fire side only; See note 18.	n/a	1 hr. 30 min		1		3,4, 24	1 1/2
W-4-M-62	4-5/8"	Core: structural clay tile; See notes 13,16,21; Facings on unexposed side only; See note 18.	n/a	35 min		1		3,4, 24	1/2
W-4-M-63	4-5/8"	Core: structural clay tile; See notes 13,17,21; Facings on unexposed face only; See note 18.	n/a	45 min		1		3,4, 24	3/4
W-4-M-64	4-5/8"	Core: structural clay tile; See notes 13,16,23; Facings on exposed face only; See note 18.	n/a	1 hr.		1		3,4, 24	1
W-4-M-65	4-5/8"	Core: structural clay tile; See notes 13,17,21; Facings on exposed side only; See note 18.	n/a	1 hr. 15 min		1		3,4, 24	1 1/2
W-4-M-66	4-5/8"	Core: structural clay tile; See notes 15,17,20; Facings on unexposed side only; See note 18.	n/a	1 hr. 30 min		1		3,4, 24	1 1/2
W-4-M-67	4-5/8"	Core: structural clay tile; See notes 15,16,20; Facings on exposed side only; See note 18.	n/a	1 hr. 45 min		1		3,4, 24	1-3/4
W-4-M-68	4-5/8"	Core: structural clay tile; See notes 15,17,20; Facings on exposed side only, see note 18.	n/a	1 hr. 45 min		1		3,4, 24	1-3/4
W-4-M-69	4-5/8"	Core: structural clay tile; See notes 15,16,20; Facings on unexposed side only, see note 18.	n/a	1 hr. 30 min		1		3,4, 24	1 1/2
W-4-M-70	4-5/8"	Core: structural clay tile; See notes 14,16,22; Facings on unexposed side only; See note 18.	n/a	30 min		1		3,4, 24	1/2
W-4-M-71	4-5/8"	Core: structural clay tile; See notes 14,17,22; Facings on unexposed side only; see note 18.	n/a	35 min		1		3,4, 24	1/2
W-4-M-72	4-5/8"	Core: structural clay tile; See notes 14,16,22; Facings on fire side of wall only; See note 18.	n/a	45 min		1		3,4, 24	3/4
W-4-M-73	4-5/8"	Core: structural clay tile; See notes 14,17,22; Facings on fire side of wall only; See note 18.	n/a	1 hr.		1		3,4, 24	1
W-5-M-74	5 1/2"	Core: structural clay tile; see notes 12,16,21; Facings on both sides; see note 18.	n/a	1 hr.		1		3,4, 24	1
W-5-M-75	5 1/2"	Core: structural clay tile; see notes 12,17,21; Facings on both sides; see note 18.	n/a	1 hr. 15 min		1		3,4, 24	1 1/2
W-5-M-76	5 1/2"	Core: structural clay tile; see notes 12,16,20; Facings on both sides; see note 18.	n/a	45 min		1		3,4, 24	3/4

## 1.1.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-M-77	5½"	Core: structural clay tile; see notes 12,17,20; Facings on both sides; see note 18.	n/a	1 hr.		1		3,4, 24	1
W-5-M-78	5½"	Core: structural clay tile; see notes 13,16,23; Facings on both sides of wall; see note 18.	n/a	1 hr. 30 min		1		3,4, 24	1½
W-5-M-79	5½"	Core: structural clay tile; see notes 13,17,23; Facings on both sides of wall; see note 18.	n/a	2 hrs.		1		3,4, 24	2
W-5-M-80	5½"	Core: structural clay tile; see notes 13,16,21; Facings on both sides of wall; see note 18.	n/a	1 hr. 15 min		1		3,4, 24	1½
W-5-M-81	5½"	Core: structural clay tile; See notes 13,16,21; Facing on both sides of wall; see note 18.	n/a	1 hr. 30 min		1		3,4 24	1½
W-5-M-82	5½"	Core: structural clay tile; see notes 15,16,20; Facings on both sides; see note 18.	n/a	2 hrs 30 min		1		3,4, 24	2½
W-5-M-83	5½"	Core: structural clay tile; see notes 15,17,20; Facings on both sides; see note 18.	n/a	2 hrs. 30 min		1		3,4, 24	2½
W-5-M-84	5½"	Core: structural clay tile; see notes 14,16,22; Facings on both sides of wall; see note 18.	n/a	1 hr. 15 min		1		3,4 24	1½
W-5-M-85	5½"	Core: structural clay tile; see notes 14,17,22; Facings on both sides of wall; see note 18.	n/a	1 hr. 30 min		1		3,4, 24	1½
W-4-M-86	4"	Core: 3" thick gypsum blocks 70% solid; see note 26; Facings on both sides per note 25.	n/a	2 hrs.		1			2
W-4-M-87	4"	Core: hollow concrete units; see notes 27,34, 35; No facings.	n/a	1 hr. 30 min		1			1½
W-4-M-88	4"	Core: hollow concrete units; see notes 28,33, 35; No facings.	n/a	1 hr.		1			1
W-4-M-89	4"	Core: hollow concrete units; see notes 28,34, 35; Facings on both sides per note 25.	n/a	1 hr. 45 min		1			1-3/4
W-4-M-90	4"	Core: hollow concrete units; see notes 27,34, 35; Facings on both sides per note 25.	n/a	2 hrs.		1			2
W-4-M-91	4"	Core: hollow concrete units; see notes 27,32, 35; No facings.	n/a	1 hr. 15 min		1			1½
W-4-M-92	4"	Core: hollow concrete units; see notes 28,34, 35; No facings.	n/a	1 hr. 15 min		1			1½
W-4-M-93	4"	Core: hollow concrete units; see notes 29,32, 35; No facings.	n/a	20 min		1			1/3
W-4-M-94	4"	Core: hollow concrete units; see notes 30,34, 35; No facings.	n/a	15 min		1			½
W-4-M-95	4½"	Core: hollow concrete units; see notes 27,34, 35; Facing on one side only, see note 25.	n/a	2 hrs.		1			2
W-4-M-96	4½"	Core: hollow concrete units; see notes 27,32, 35; Facing on one side only, see note 25.	n/a	1 hr. 45 min		1			1-3/4
W-4-M-97	4½"	Core: hollow concrete units; see notes 28,33, 35; Facings on one side per note 25.	n/a	1 hr. 30 min		1			1½
W-4-M-98	4½"	Core: hollow concrete units; see notes 28,34, 35; Facings on one side only per note 25.	n/a	1 hr. 45 min		1			1-3/4
W-4-M-99	4½"	Core: hollow concrete units; see notes 29,32, 35; Facing on one side per note 25.	n/a	30 min		1			½
W-4-M-100	4½"	Core: hollow concrete units; see notes 30,34, 35; Facing on one side per note 25.	n/a	20 min		1			1/3
W-5-M-101	5"	Core: hollow concrete units; see notes 27,34, 35; Facings on both sides, see note 25.	n/a	2 hrs 30 min		1			2½

## 1.1.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
M-5-M-102	5"	Core: hollow concrete units; see notes 27,32, 35; Facings on both sides per note 25.	n/a	2 hrs. 30 min		1			2½
M-5-M-103	5"	Core: hollow concrete units; see notes 28,33-35; Facings on both sides per note 25.	n/a	2 hrs.		1			2
M-5-M-104	5"	Core: hollow concrete units; see notes 28,31, 35; Facings on both sides per note 25.	n/a	2 hrs.		1			2
M-5-M-105	5"	Core: hollow concrete units; see notes 29,32, 35; Facings on both sides per note 25.	n/a	1 hr. 45 min		1			1-3/4
M-5-M-106	5"	Core: hollow concrete units; see notes 30,34, 35; Facings on both sides per note 25.	n/a	1 hr.		1			1
M-5-M-107	5"	Core: 5" thick solid gypsum blocks; see note 26; No facings.	n/a	4 hrs.		1			4
M-5-M-108	5"	Core: 4" thick hollow gypsum blocks; see note 26; Facings on both sides per note 25.	n/a	3 hrs.		1			3
M-5-M-109	4"	Concrete with 4"x 4" No. 6 welded wire-mesh at wall center.	100 PSI	45 min			43	2	3/4
M-5-M-110	4"	Concrete with 4"x 4" No. 6 welded wire mesh at wall center.	n/a	1 hr. 15 min			43	2	1½

TABLE 1.1.2

## NOTES

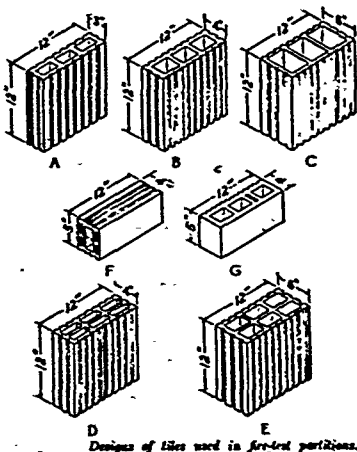
1. Tested at NBS under ASA Spec No. A 2-1934.
2. Failure mode - maximum temperature rise.
3. Tested at NBS under ASA Spec. No. 42-1934 (ASTM C-19-53) except that hose stream testing where carried out was run on test specimens exposed for full test duration, not for or reduced period as is contemporarily done.
4. For clay tile walls, unless the source of the clay can be positively identified, it is suggested that the most pessimistic hour rating for the fire endurance of a clay tile partition of that thickness be followed. Identified sources of clay showing longer fire endurance can lead to longer time recommendations.
5. See appendix for construction and design details for clay tile walls.
6. Failure mode - flame thru or crack formation showing flames.
7. Hole formed at 25 min.; partition collapsed at 42 min. on removal from furnace.
8. Failure mode - collapse.
9. Hose stream pass.
10. Hose stream hole formed in specimen.
11. Load - 80 PSI for gross wall cross sectioned area.
12. One cell in wall thickness.
13. Two cells in wall thickness.



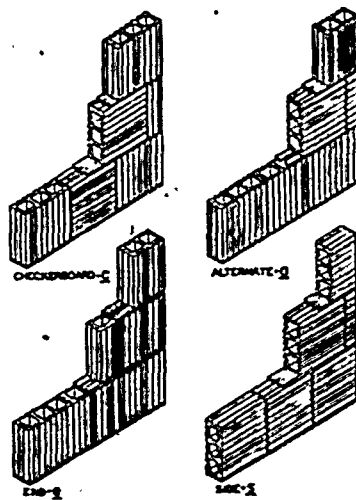
## 1.1.2 (cont'd)

## NOTES

14. Double cells plus one cell in wall thickness.
15. One cell in wall thickness, cells filled with broken tile, crushed stone, slag, cinders or sand mixed with mortar.
16. Dense hard-burned clay or shale tile.
17. Medium-burned clay tile.
18. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
19. Units of not less than 30% solid material.
20. Units of not less than 40% solid material.
21. Units of not less than 50% solid material.
22. Units of not less than 45% solid material.
23. Units of not less than 60% solid material.
24. All tiles laid in portland cement-lime mortar.
25. Minimum 1/2" - 1:3 sanded gypsum plaster.
26. Laid in 1:3 sanded gypsum mortar. Voids in hollow units not to exceed 30%.
27. Units of expanded slag or pumice aggregate.
28. Units of crushed limestone, blast furnace slag, cinders, and expanded clay or shale.
29. Units of calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
30. Units of siliceous sand and gravel. 90% or more quartz, chert or flint.
31. Unit at least 49% solid.
32. Unit at least 62% solid.
33. Unit at least 65% solid.
34. Unit at least 73% solid.
35. Ratings based on one unit and one cell in wall thickness.
36. See Clay Tile Partition Design Construction drawings, below.



Designs of tiles used in fire-rated partitions.

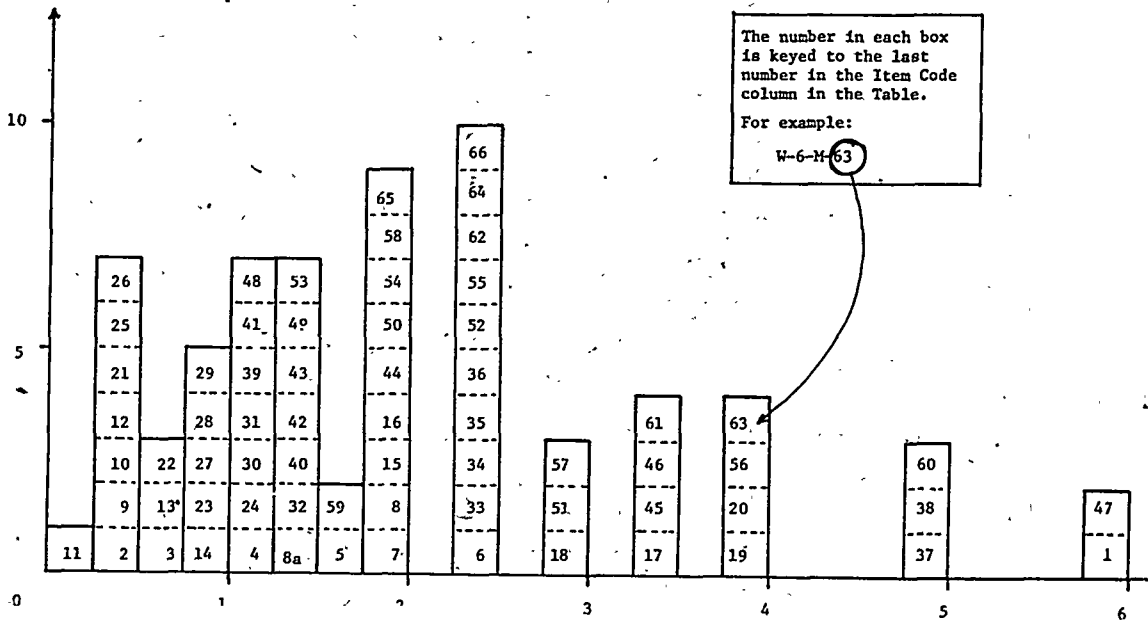


The four types of construction used in fire-rated partitions.

FIGURE 1.1.3

## WALLS- MASONRY

Thickness - 6" To Less Than 8"

NUMBER OF  
ASSEMBLIES

FIRE RESISTANCE RATING (HOURS)

TABLE 1.1.3

## MASONRY WALLS

Walls 6" Thick to Less Than 8"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-6-M-1	6"	Core: 5" thick, solid gypsum blocks laid in 1:3 sanded gypsum mortar; 1/2" of 1:3 sanded gypsum plaster facings on both sides.	n/a	6 hr.		1			6
W-6-M-2	6"	6" clay tile; Ohio fire clay; single cell thick; plaster - none; Design "C"; Constr. "A".	n/a	17 min			2	1,3,4,6,55	1/2
W-6-M-3	6"	6" clay tile; Illinois surface clay; double cell thick; No plaster; Design "E"; Constr. "C".	n/a	45 min			2	1-4,7,55	3/4
W-6-M-4	6"	6" clay tile; New Jersey fire clay; double cell thick; No plaster; Design "E"; Constr. "S".	n/a	1 hr. 1 min			2	1-4,8,55	1
W-7-M-5	7 1/2"	6" clay tile; Illinois surface clay; double cell thick; Plaster: 5/8" - 1:3 sanded gypsum both faces; Design "E"; Constr. "A".	n/a	1 hr. 41 min			2	1-4,55	1-2/3
W-7-M-6	7 1/2"	6" clay tile; New Jersey Fire Clay; Double cell thick; Plaster: 5/8" - 1:3 sanded gypsum both faces; Design "E"; Constr. "S".	n/a	2 hr. 23 min			2	1-4,9,55	2-1/3
W-7-M-7	7 1/2"	6" clay tile; Ohio fire clay; single cell thick; Plaster: 5/8" sanded gypsum; 1:3 both faces; Design "E"; Constr. "A".	n/a	1 hr. 54 min			2	1-4,9,55	2-3/4

## 1.1.3 (cont'd)

Walls 6" Thick to Less Than 8"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-7-M-8	7½"	6" clay tile; Illinois surface clay; single cell thick; Plaster: 5/8" sanded gypsum 1:3 both faces; Design "C"; Constr."S".	n/a	2 hrs.			2	1,3,4 9,10 55	2
W-7-M-8a	7½"	6" clay tile; Illinois surface clay; single cell thick; Plaster: 5/8" sanded gypsum 1:3 both faces; Design "C"; Constr."E".	n/a	1 hr. 23 min			2	1-4 9,10 55	1½
W-6-M-9	6"	Core: Structural clay tile; See notes 12,16,20. No facings.	n/a	20 min		1		3,5, 24	1/3
W-6-M-10	6"	Core: structural clay tile; See notes 12,17,20. No facings.	n/a	25 min		1		3,5, 24	1/3
W-6-M-11	6"	Core: structural clay tile; See notes 12,16,19. No facings.	n/a	15 min		1		3,5 24	½
W-6-M-12	6"	Core: structural clay tile; See notes 12,17,19. No facings.	n/a	20 min		1		3,5 24	1/3
W-6-M-13	6"	Core: structural clay tile; See note 13,16,22; No facings.	n/a	45 min		1		3,5 24	3/4
W-6-M-14	6"	Core: structural clay tile; See notes 13,17,22; No facings.	n/a	1 hr.		1		3,5, 24	1
W-6-M-15	6"	Core: structural clay tile; See notes 15,17,19; No facings.	n/a	2 hr.		1		3,5, 24	2
W-6-M-16	6"	Core: structural clay tile; See notes 15,16,19. No facings.	n/a	2 hrs.		1		3,5, 24	2
W-6-M-17	6"	Cored concrete masonry; See notes 12,34,36,38, 41; No facings.	80 PSI	3 hrs. 30 min		1		5,25	¾
W-6-M-18	6"	Cored concrete masonry; See notes 12,33,36,38, 41; No facings.	80 PSI	3 hrs.		1		5,25	3
W-6-M-19	6½"	Cored concrete masonry; See notes 12,34,36,38, 41; Facings: See note 35 for side 1.	80 PSI	4 hrs.		1		5,25	4
W-6-M-20	6½"	Cored concrete masonry; See notes 12,33,36,38, 41; Facings: See note 35 for side 1.	80 PSI	4 hrs.		1		5,25	4
W-6-M-21	6-5/8"	Core: structural clay tile; See notes 12,16,20; Facing: unexposed face only, see note 18.	n/a	30 min.		1		3,5, 24	½
W-6-M-22	6-5/8"	Core: structural clay tile; see notes 12,17,20; Facing: unexposed face only, see note 18.	n/a	40 min		1		3,5, 24	2/3
W-6-M-23	6-5/8"	Core: structural clay tile; see notes 12,16,20; Facing: exposed face only, see note 18.	n/a	1 hr.		1		3,5 24	1
W-6-M-24	6-5/8"	Core: structural clay tile; see notes 12,17,20; Facing: exposed face only, see note 18.	n/a	1 hr. 5 min		1		3,5, 24	1
W-6-M-25	6-5/8"	Core: structural clay tile; see notes 12,16,19; Facing unexposed side only, see note 18.	n/a	25 min		1		3,5,24	1/3
W-6-M-26	6-5/8"	Core: structural clay tile; see notes 12,7,19; Facings: On unexposed side only, see note 18.	n/a	30 min		1		3,5, 24	½
W-6-M-27	6-5/8"	Core: structural clay tile; see notes 12,16,19; Facings: on exposed side only, see note 18.	n/a	1 hr.		1		3,5, 24	1
W-6-M-28	6-5/8"	Core: structural clay tile; see notes 12,17,19; Facings: on fire side only, see note 18.	n/a	1 hr.		1		3,5, 24	1
W-6-M-29	6-5/8"	Core: structural clay tile; see notes 13,16,22; Facings: on unexposed side only, see note 18.	n/a	1 hr.		1		3,5, 24	1
W-6-M-30	6-5/8"	Core: structural clay tile; see notes 13,17,22; Facings: on unexposed side only, see note 18.	n/a	1 hr. 15 min		1		3,5, 24	1½
W-6-M-31	6-5/8"	Core: structural clay tile; see notes 13,16,22; Facings: on fire side only, see note 18.	n/a	1 hr. 15 min		1		3,5, 24	1½
W-6-M-32	6-5/8"	Core: structural clay tile; see notes 13,17,22; Facings: on fire side only, see note 18.	n/a	1 hr. 30 min		1		3,5 24	1½

## 1.1.3 (cont'd)

## Wall 6" Thick to Less Than 8"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-6-M-33	6-5/8"	Core: structural clay tile; see notes 15,16,19; Facings: on unexposed side only, see note 18.	n/a	2 hr. 30 min		1		3,5 24	2½
W-6-M-34	6-5/8"	Core: structural clay tile; see notes 15,17,19; Facings: on unexposed side only, see note 18.	n/a	2 hr. 30 min		1		3,5 24	2½
W-6-M-35	6-5/8"	Core: structural clay tile; see notes 15,16,19; Facings: on fire side only, see note 18.	n/a	2 hr. 30 min		1		3,5 24	2½
W-6-M-36	6-5/8"	Core: structural clay tile; see notes 15,17,19; Facings: on fire side only, see note 18.	n/a	2 hr. 30 min		1		3,5 24	2½
W-7-M-37	7"	Cored concrete masonry; see notes 12,34,36,38, 41; See note 35 for facings on both sides.	80 PSI	5 hr.		1		5,25	5
W-7-M-38	7"	Cored concrete masonry; see notes 12,33,36,38, 41; See note 35 for facings.	80 PSI	5 hr.		1		5,25	5
W-7-M-39	7½"	Core: structural clay tile; see notes 12,16,20; See note 18 for facings on both sides.	n/a	1 hr. 15 min		1		3,5 24	1½
W-7-M-40	7½"	Core: structural clay tile; see notes 12,17,20; See note 18 for facings on both sides.	n/a	1 hr. 30 min		1		3,5 24	1½
W-7-M-41	7½"	Core: structural clay tile; see notes 12,16,19; See note 18 for facings on both sides.	n/a	1 hr. 15 min		1		3,5 24	1½
W-7-M-42	7½"	Core: structural clay tile; see notes 12,17,19; See note 18 for facings on both sides.	n/a	1 hr. 30 min		1		3,5 24	1½
W-7-M-43	7½"	Core: structural clay tile; see notes 13,16,22; Facings: on both sides of wall, see note 18.	n/a	1 hr. 30 min		1		3,5 24	1½
W-7-M-44	7½"	Core: structural clay tile; see notes 13,17,22; Facings: on both sides of wall, see note 18.	n/a	2 hr.		1		3,5 24	2
W-7-M-45	7½"	Core: structural clay tile; see notes 15,16,19; Facings: both sides, see note 18.	n/a	3 hr. 30 min		1		3,5 24	3½
W-7-M-46	7½"	Core: structural clay tile; see notes 15,17,19; Facings: both sides, see note 18.	n/a	3 hr. 30 min		1		3,5 24	3½
W-6-M-47	6"	Core: 5" thick solid gypsum blocks; See note 45; Facings: both sides per note 35.	n/a	6 hr.		1			6
W-6-M-48	6"	Core: hollow concrete units; see notes 47,50, 54; No facings.	n/a	1 hr. 15 min		1			1½
W-6-M-49	6"	Core: hollow concrete units; see notes 46,50, 54; No facings.	n/a	1 hr. 30 min		1			1½
W-6-M-50	6"	Core: hollow concrete units; see notes 46,41, 54; No facings.	n/a	2 hr.		1			2
W-6-M-51	6"	Core: hollow concrete units; see notes 46,53, 54; No facings.	n/a	3 hr.		1			3
W-6-M-52	6"	Core: hollow concrete units; see notes 47,53, 54; No facings.	n/a	2 hr. 30 min		1			2½
W-6-M-53	6"	Core: hollow concrete units; see notes 47,51, 54; No facings.	n/a	1 hr. 30 min		1			1½
W-6-M-54	6½"	Core: hollow concrete units; see notes 46,50, 54; Facing: one side only per note 35.	n/a	2 hr.		1			2
W-6-M-55	6½"	Core: hollow concrete units; see notes 4,51,54; Facings: one side per note 35.	n/a	2 hr. 30 min		1			2½

## 1.1.3 (cont'd)

## Wall 6" Thick to Less Than 8"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-6-M-56	6½"	Core: hollow concrete units; see notes 46,53, 54; Facings: one side per note 35.	n/a	4 hrs.		1			4
W-6-M-57	6½"	Core: hollow concrete units; see notes 47,53, 54; Facing: One side per note 35.	n/a	3 hrs.		1			3
W-6-M-58	6½"	Core: hollow concrete units; See notes 47,51, 54; Facing: one side per note 35.	n/a	2 hrs.		1			2
W-6-M-59	6½"	Core: hollow concrete units; see notes 47,50, 54; Facings: one side per note 35.	n/a	1 hr. 45 min		1			1-3/4
W-7-M-60	7"	Core: hollow concrete units; see notes 46,53, 54; Facings: both sides per note 35.	n/a	5 hrs.		1			5
W-7-M-61	7"	Core: hollow concrete units; see notes 46,51, 54; Facings: both sides per note 35.	n/a	3 hrs. 30 min		1			3½
W-7-M-62	7"	Core: hollow concrete units; see notes 46,50, 54; Facings: both sides per note 35.	n/a	2 hrs. 30 min		1			2½
W-7-M-63	7"	Core: hollow concrete units; see notes 47,53, 54; Facing: both sides per note 35.	n/a	4 hrs.		1			4
W-7-M-64	7"	Core: hollow concrete units, see notes 47,51,54; Facing: both sides per note 35.	n/a	2 hrs. 30 min		1			2½
W-7-M-65	7"	Core: hollow concrete units; see notes 47,50, 54; Facing: both sides per note 35.	n/a	2 hrs.		1			2
W-6-M-66	6"	Concrete wall with 4"x4" No. 6 wire fabric(welded) near wall center for reinforcement.	300 PSI	2 hrs. 30 min			43	2	2½

TABLE 1.1.3

## NOTES

1. Tested at NBS under ASA Spec. No. 42-1934 (ASTM C-19-53) except that hose stream testing where carried out was run on test specimens exposed for full test duration, not for a reduced period as is contemporarily done.
2. Failure by thermal criteria - maximum temperature rise.
3. For clay tile walls, unless the source of the clay can be positively identified, it is suggested that the most pessimistic hour rating for the fire endurance of a clay tile partition of that thickness be followed. Identified sources of clay showing longer fire endurance can lead to longer time recommendations.
4. See note 55 for construction and design details for clay tile walls.
5. Tested at NBS under ASA Spec. No. A2-1934.
6. Failure mode - collapse.
7. Collapsed on removal from furnace @ 1 hour 9 minutes.
8. Hose stream - failed.
9. Hose stream - passed.
10. No end point met in test.
11. Wall collapsed at 1 hour 28 minutes.

## 1.1.3 (cont'd)

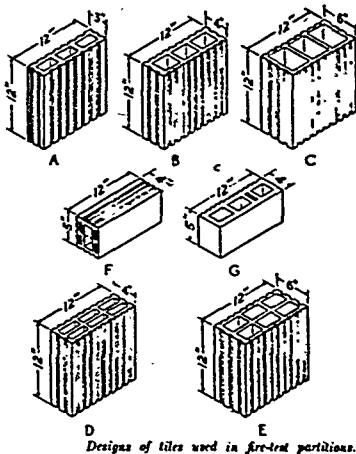
## NOTES

12. One cell in wall thickness.
13. Two cells in wall thickness.
14. Double shells plus one cell in wall thickness.
15. One cell in wall thickness, cells filled with broken tile, crushed stone, slag, cinders or sand mixed with mortar.
16. Dense hard-burned clay or shale tile.
17. Medium-burned clay tile.
18. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
19. Units of not less than 30% solid material.
20. Units of not less than 40% solid material.
21. Units of not less than 50% solid material.
22. Units of not less than 45% solid material.
23. Units of not less than 60% solid material.
24. All tiles laid in portland cement-lime mortar.
25. Load - 80 PSI for gross cross sectional area of wall.
26. 3 cells in wall thickness.
27. Minimum % of solid material in concrete units = 52.
28. Minimum % of solid material in concrete units = 54.
29. Minimum % of solid material in concrete units = 55.
30. Minimum % of solid material in concrete units = 57.
31. Minimum % of solid material in concrete units = 62.
32. Minimum % of solid material in concrete units = 65.
33. Minimum % of solid material in concrete units = 70.
34. Minimum % of solid material in concrete units = 76.
35. Not less than 1/4" of 1:3 sanded gypsum plaster.
36. Noncombustible or no members framed into wall.
37. Combustible members framed into wall.
38. 1 unit in wall thickness.
39. 2 units in wall thickness.
40. 3 units in wall thickness.
41. Concrete units made with expanded slag or pumice aggregates.
42. Concrete units made with expanded burned clay or shale, crushed limestone, air cooled slag or cinders.
43. Concrete units made with calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
44. Concrete units made with siliceous sand and gravel. 90% or more quartz, chert, or flint.
45. Laid in 1:3 sanded gypsum mortar.

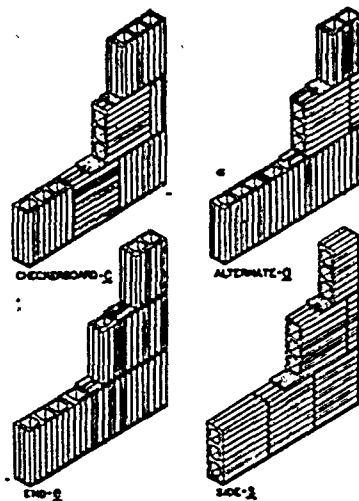
## 1.1.3 (cont'd)

## NOTES

46. Units of expanded slag or pumice aggregate.
47. Units of crushed limestone, blast furnace slag, cinders and expanded clay or shale.
48. Units of calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
49. Units of siliceous sand and gravel. 90% or more quartz, chert or flint.
50. Unit minimum 49% solid.
51. Unit minimum 62% solid.
52. Unit minimum 65% solid.
53. Unit minimum 73% solid.
54. Ratings based on 1 unit and 1 cell in wall section.
55. See Clay Tile Partition Design Construction drawings, below.



Designs of tiles used in fire-rated partitions.



The four types of construction used in fire-rated partitions.

FIGURE 1.1.4

## WALLS - MASONRY

Thickness - 8" to Less Than 10"

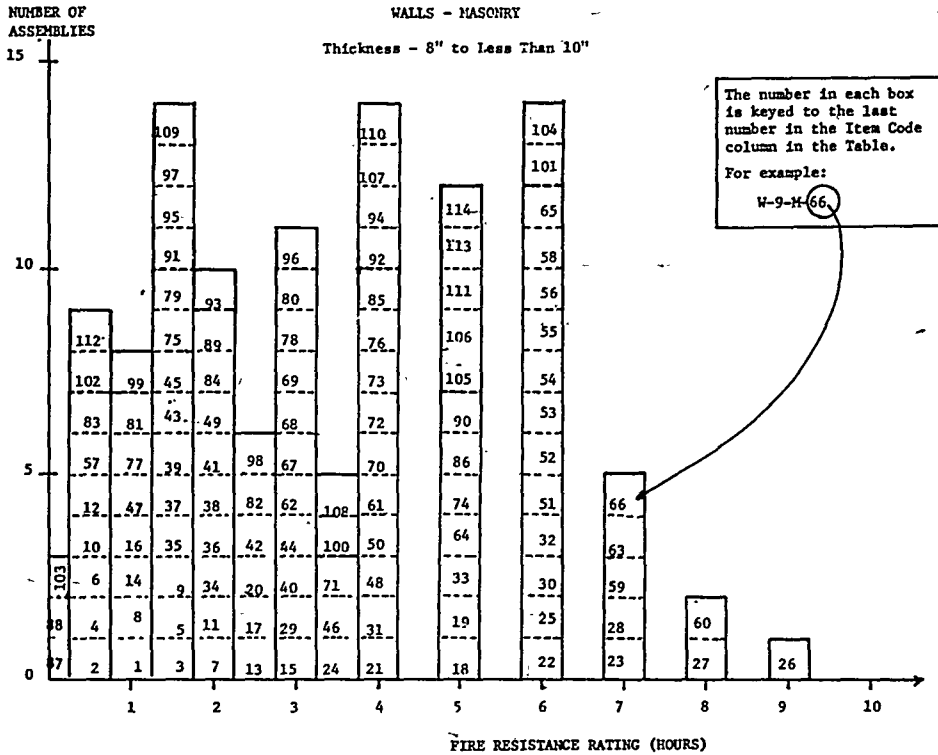


TABLE 1.1.4

## MASONRY WALLS

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-8-M-1	8"	Core: clay or shale structural tile; Units in wall thickness: 1; Cells in wall thickness: 2; Minimum % solids in units: 40.	80 PSI	1 hr. 15min.		1		1, 20	1 1/4
W-8-M-2	8"	Core: clay or shale structural tile; Units in wall thickness: 1; Cells in wall thickness: 2; Minimum % solids in units: 40; Facings: None; Result for wall with combustible members framed into interior.	80 PSI	45min.		1		1, 20	3/4
W-8-M-3	8"	Core: clay or shale structural tile; Units in wall thickness: 1; Cells in wall thickness: 2; Minimum % solids in units: 43.	80 PSI	1 hr. 30min.		1		1, 20	1 1/4
W-8-M-4	8"	Core: clay or shale structural tile; Units in wall thickness: 1; Cells in wall thickness: 2; Minimum % solids in units: 43; No facings; Combustible members framed into wall.	80 PSI	45min.		1		1, 20	3/4
W-8-M-5	8"	Core: clay or shale structural tile; No facings.	See Notes	1 hr. 30min.		1		1, 2, 5, 10, 18, 20, 21	1 1/4
W-8-M-6	8"	Core: Clay or shale structural tile; No facings.	See Notes	45min.		1		1, 2, 5, 10, 19-21	3/4



## 1.1.4 (cont'd)

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-8-M-7	8"	Core: clay or shale structural tile; No facings.	See Notes	2 hr.		1		1,2,5,13,18,20,21	2
W-8-M-8	8"	Core: clay or shale structural tile; No facings.	See Notes	1 hr. 15min		1		1,2,5,13,19,20,21	1½
W-8-M-9	8"	Core: clay or shale structural tile; No facings.	See Notes	1 hr. 45min		1		1,2,6,9,18,20,21	1-3/4
W-8-M-10	8"	Core: Clay or shale structural tile; No facings.	See Notes	45min		1		1,2,6,9,19,20,21	3/4
W-8-M-11	8"	Core: clay or shale structural tile; No facings.	See Notes	2 hr.		1		1,2,6,10,18,20,21	2
W-8-M-12	8"	Core: clay or shale structural tile; No facings.	See Notes	45min		1		1,2,6,10,19,20,21	3/4
W-8-M-13	8"	Core: clay or shale structural tile; No facings.	See Notes	2 hr. 30min		1		1,3,6,12,18,20,21	2½
W-8-M-14	8"	Core: clay or shale structural tile; No facings.	See Notes	1 hr.		1		1,2,6,12,19,20,21	1
W-8-M-15	8"	Core: clay or shale structural tile; No facings.	See Notes	3 hr.		1		1,2,6,16,18,20,21	3
W-8-M-16	8"	Core: clay or shale structural tile; No facings.	See Notes	1 hr. 15min		1		1,2,6,16,19,20,21	1½
W-8-M-17	8"	Units in Wall Thickness: 1; Cells in wall thickness: 1; Minimum % solids: 70; Cored clay or shale brick; No facings.	See Notes	2 hr. 30min		1		1, 44	2½
W-8-M-18	8"	Cored clay or shale bricks; Units in wall thickness: 2; Cells in wall thickness: 2; Min. % solids: 87; No facings.	See Notes	5 hr.		1		1,45	5
W-8-M-19	8"	Core: Solid clay or shale brick; No facings.	See Notes	5 hr.		1		1,45,22	5
W-8-M-20	8"	Core: Hollow rolok of clay or shale.	See Notes	2 hr. 30min		1		1,45,22	2½
W-8-M-21	8"	Core: Hollow rolok bak of clay or shale; No facings.	See Notes	4 hr.		1		1,45	4
W-8-M-22	8"	Core: concrete brick; No facings.	See Notes	6 hr.		1		1,45	6
W-8-M-23	8"	Core: sand-lime brick; No facings.	See Notes	7 hr.		1		1, 45	7
W-8-M-24	8"	Core: 4"; 40% solid clay or shale structural tile; 1 side 4" brick facing;	See Notes	3 hr. 30min		1		1,20	3½
W-8-M-25	8"	Concrete wall (3220 PSI); Reinforcing vertical rods 1" from each face and 1" dia.; horizontal rods 3/8" dia.	22,200 lb/ft.	6 hr.			7		6
W-8-M-26	8"	Core: Sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	See Notes	9 hr.		1		1,45	9
W-8-M-27	8½"	Core: sand-lime brick; ½" of 1:3 sanded gypsum plaster facing on one side.	See Notes	8 hr.		1		1,45	8
W-8-M-28	8½"	Core: concrete; ½" of 1:3 sanded gypsum plaster facing on one side.	See Notes	7 hr.		1		1,45	7
W-8-M-29	8½"	Core: hollow rolok of clay or shale; ½" of 1:3 sanded gypsum plaster facing on one side.	See Notes	3 hr.		1		1,45	3

## 1.1.4 (cont'd)

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-8-M-30	8½"	Core: Solid clay or shale brick; ½" thick, 1:3 sanded gypsum plaster facing on one side.	See Notes	6 hr.		1		1,45 22	6
W-8-M-31	8½"	Core: Cored clay or shale brick; Units in wall thickness: 1; Cells in wall thickness: 1; Min. % solids: 70; ½" of 1:3 sanded gypsum plaster facing on both sides.	See Notes	4 hr.		1		1,44	4
W-8-M-32	8½"	Cored clay or shale bricks; Units in wall thickness: 2; Cells in wall thickness: 2; Min. % solids: 87; ½" of 1:3 sanded gypsum plaster facing on one side.	See Notes	6 hr.		1		1,45	6
W-8-M-33	8½"	Hollow Rolok Bak of clay or shale core; ½" of 1:3 sanded gypsum plaster facing on one side.	See Notes	5 hr.		1		1,45	5
W-8-M-34	8-5/8"	Core: clay or shale structural tile; units in wall thickness: 1; cells in wall thickness: 2; Min. % solids in units: 40; 5/8" of 1:3 sanded gypsum plaster facing on one side.	See Notes	2 hr.		1		1,20, 21	2
W-8-M-35	8-5/8"	Core: clay or shale structural tile; units in wall thickness: 1; cells in wall thickness: 2; Min. % solids in units: 40; Exposed face: 5/8" of 1:3 sanded gypsum plaster.	See Notes	1 hr. 30min		1		1,20, 21	1½
W-8-M-36	8-5/8"	Core: clay or shale structural tile; Units in wall thickness: 1; cells in wall thickness: 2; Min. % solids in units: 43; 5/8" of 1:3 sanded gypsum plaster facing on one side.	See Notes	2 hr.				1,20 21	2
W-8-M-37	8-5/8"	Core: clay or shale structural tile; units in wall thickness: 1; cells in wall thickness: 2; Min. % solids in units: 43; 5/8" of 1:3 sanded gypsum plaster of the exposed face only.	See Notes	1 hr. 30min		1		1,20 21	1½
W-8-M-38	8-5/8"	Core: clay or shale structural tile; See note 17 for facing side 1.	See Notes	2 hr.		1		1,2,5, 10,18 20,21	2
W-8-M-39	8-5/8"	Core: clay or shale structural tile; Facings: on exposed side only, see note 17.	See Notes	1 hr. 30min		1		1,2,5, 10,19, 20,21	1½
W-8-M-40	8-5/8"	Core: clay or shale structural tile; Facings on exposed side only, see note 17.	See Notes	3 hr.		1		1,2,5, 13,18, 20,21	3
W-8-M-41	8-5/8"	Core: clay or shale structural tile; Facings on exposed side only, see note 17.	See Notes	2 hr.		1		1,2,5, 13,19, 20,21	2
W-8-M-42	8-5/8"	Core: clay or shale structural tile; facings on side 1, see note 17.	See Notes	2 hr. 30min		1		1,2,6, 9,18, 20,21	2½
W-8-M-43	8-5/8"	Core: clay or shale structural tile; Facings on exposed side only as per note 17.	See Notes	1 hr. 30min		1		1,2,6, 9,19, 20,21	1½
W-8-M-44	8-5/8"	Core: clay or shale structural tile; Facings Side 1: see note 17; Side 2: none.	See Notes	3 hr.		1		1,2,6, 10,18, 20,21	3
W-8-M-45	8-5/8"	Core: Clay or shale structural tile; Facings on fire side only, see note 17.	See Notes	1 hr. 30min		1		1,2,6, 10,19, 20,21	1½
W-8-M-46	8-5/8"	Core: clay or shale structural tile; facings: Side 1: see note 17; Side 2: none.	See Notes	3 hr. 30min		1		1,2,6, 12,18, 20,21	3½
W-8-M-47	8-5/8"	Core: clay or shale structural tile; Facings exposed side only, see note 17.	See Notes	1 hr. 45min		1		1,2,6, 12,19, 20,21	1-3/4
W-8-M-48	8-5/8"	Core: clay or shale structural tile; Facings: Side 1: See note 17; Side 2: None.	See Notes	4 hr.		1		1,2,6, 16,18, 20,21	4
W-8-M-49	8-5/8"	Core: clay or shale structural tile; Facings: fire side only, see note 17.	See Notes	2 hr.		1		1,2,6, 16,19, 20,21	2

## 1.1.4 (cont'd)

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Eac. Hours
			Load	Time	Pre-RMS-92	RMS-92	Post-RMS-92		
W-8-M-50	8-5/8"	Core: 4", 40% solid clay or shale structural tile; 4" brick plus 5/8" of 1:3 sanded gypsum plaster facing on one side.	See Notes	4 hr.		1		1,20	4
W-8-M-51	8-3/4"	8-3/4"x 2 1/2" and 4"x 2 1/2" Cellular fletton (1873 PSI) single and triple cell hollow bricks set in 1/2" sand mortar in alt. courses.	3.6 ton/ft	6 hr.			7	23,29	6
W-8-M-52	8-3/4"	8-3/4" thick cement brick (2527 PSI) with P.C. and sand mortar.	3.6 ton/ft	6 hr.			7	23,24	6
W-8-M-53	8-3/4"	8-3/4"x 2 1/2" fletton brick (1831 PSI) in 1/2" sand mortar.	3.6 ton/ft	6 hr.			7	23,24	6
W-8-M-54	8-3/4"	8-3/4"x 2 1/2" London stock brick (683 PSI) in 1/2" P.C.-sand mortar	7.2 ton/ft	6 hr.			7	23,24	6
W-9-M-55	9"	9"x 2 1/2" Leicester Red Wire cut brick(4465 PSI) in 1/2" P.C. - sand mortar.	5.0 ton/ft	6 hr.			7	24,23	6
W-9-M-56	9"	9"x 3" sandline brick (2603 PSI) in 1/2" P.C. sand mortar.	3.6 ton/ft	6 hr.			7	23,24	6
W-9-M-57	9"	2 layers 2-7/8 fletton brick (1910 PSI) with 3/4" air space; Cement and sand mortar.	1.5 ton/ft	32min.			7	23,25	1/3
W-9-M-58	9"	9"x 3" stairfoot brick (7527 PSI) in 1/2" sand-cement mortar.	7.2 ton/ft	6 hr.			7	23,24	6
W-9-M-59	9"	Core: Solid clay or shale bricks; 1/2" thick; 1:3 sanded gypsum plaster facing on both sides	See Notes	7 hr.		1		1,45 22	7
W-9-M-60	9"	Core: Concrete brick; 1/2" of 1:3 sanded gypsum plaster facings on both sides.	See Notes	8 hr.		1		1,45	8
W-9-M-61	9"	Core: Hollow Rolok of clay or shale; 1/2" of 1:3 sanded gypsum plaster facings on both sides.	See Notes	4 hr.		1		1,45	4
W-9-M-62	9"	Cored clay or shale brick; Units in wall thickness: 1; cells in wall thickness: 1; Min. X solids: 70; 1/2" of 1:3 sanded gypsum plaster facing on one side.	See Notes	3 hr.		1		1,44	3
W-9-M-63	9"	Cored clay or shale bricks; Units in wall thickness: 2; cells in wall thickness: 2; Min. X solids: 87; 1/2" of 1:3 sanded gypsum plaster facing on both sides.	See Notes	7 hr.		1		1,45	7
W-9-M-64	9-10"	Core: Cavity wall of clay or shale brick; No facings.	See Notes	5 hr.		1		1,45	5
W-9-M-65	9"-10"	Core: Cavity construction of clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	See Notes	6 hr.		1		1,45	6
W-9-M-66	9"-10"	Core: Cavity construction of clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on both sides.	See Notes	7 hr.		1		1,45	7
W-9-M-67	9 1/2"	Core: clay or shale structural tile; Units in wall thickness: 1; cells in wall thickness: 2; Min. X solids in units: 40; 5/8" of 1:3 sanded gypsum plaster facing on both sides.	See Notes	3 hr.		1		1,20, 21	3
W-9-M-68	9 1/2"	Core: Clay or shale structural tile; Units in wall thickness: 1; cells in wall thickness: 2; Min. X solids in units: 43; 5/8" of 1:3 sanded gypsum plaster facings on both sides.	See Notes	3 hr.		1		1,20 21	3
W-9-M-69	9 1/2"	Core: clay or shale structural tile; Facings: Side 1: See note 17; Side 2: See note 17.	See Notes	3 hr.		1		1,2,5 10,18 20,21	3
W-9-M-70	9 1/2"	Core: clay or shale structural tile; Facings: Side 1 and 2: See note 17.	See Notes	4 hr.		1		1,2,5 13,18 20,21	4
W-9-M-71	9 1/2"	Core: clay or shale structural tile; Facings: Side 1 and 2: See note 17.	See Notes	3 hr. 30min.		1		1,2,6 9,18, 20,21	3 1/2

## 1.1.4 (cont'd)

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-9-M-72	9½"	Core: clay or shale structural tile; Facings: Side 1 and 2: See note 17	See Notes	4 hr.		1		1,2,6,10,18,20,21	4
W-9-M-73	9½"	Core: clay or shale structural tile; Facings: Side 1 and 2: See note 17	See Notes	4 hr.		1		1,2,6,12,18,20,21	4
W-9-M-74	9½"	Core: clay or shale structural tile; Facings: Side 1 and 2: See note 17.	See Notes	5 hr.		1		1,2,6,16,18,20,21	5
W-8-M-75	8"	Cored concrete masonry; See notes 2,19,26,34,40 No facings.	80 PSI	1 hr. 30 min		1		1,20	1½
W-8-M-76	8"	Cored concrete masonry; See notes 2,18,26,34,40 No facings.	80 PSI	4 hrs.		1		1,20	4
W-8-M-77	8"	Cored concrete masonry; See notes 2,26,31,19,40 No facings.	80 PSI	1 hr. 15 min		1		1,20	1½
W-8-M-78	8"	Cored concrete masonry; See notes 2,18,26,31,40 No facings.	80 PSI	3 hrs.		1		1,20	3
W-8-M-79	8"	Cored concrete masonry; See notes 2,19,26,36,41 No facings.	80 PSI	1 hr. 30 min		1		1,20	1½
W-8-M-80	8"	Cored concrete masonry; See notes 2,26,36,18,41 No facings.	80 PSI	3 hrs.		1		1,20	3
W-8-M-81	8"	Cored concrete masonry; See notes 2,19,26,34,41 No facings.	80 PSI	1 hr.		1		1,20	1
W-8-M-82	8"	Cored concrete masonry; See notes 2,18,26,34,41 No facings.	80 PSI	2 hrs. 30 min		1		1,20	2½
W-8-M-83	8"	Cored concrete masonry; See notes 2,19,26,29,41 No facings.	80 PSI	45 min		1		1,20	3/4
W-8-M-84	8"	Cored concrete masonry; See notes 2,18,26,29,41 No facings.	80 PSI	2 hrs.		1		1,20	2
W-8-M-85	8½"	Cored concrete masonry; See notes 3,18,26,34,41 Facings: 2½" brick.	80 PSI	4 hrs.		1		1,20	4
W-8-M-86	8"	Cored concrete masonry; See notes 3,18,26,34,41 Facings: 3-3/4" brick face.	80 PSI	5 hrs.		1		1,20	5
W-8-M-87	8"	Cored concrete masonry; See notes 2,19,26,30,43 No facings.	80 PSI	12 min		1		1,20	1/5
W-8-M-88	8"	Cored concrete masonry; See notes 2,18,26,30,43 No facings.	80 PSI	12 min		1		1,20	1/5
W-8-M-89	8½"	Cored concrete masonry; See notes 2,19,26,34,40 Facings: on fire side only; see note 38.	80 PSI	2 hrs.		1		1,20	2
W-8-M-90	8½"	Cored concrete masonry; See notes 2,18,26,34,40 Facings: see note 38 for side 1.	80 PSI	5 hrs.		1		1,20	5
W-8-M-91	8½"	Cored concrete masonry; See notes 2,26,31,19,40; Facings on fire side only; see note 38.	80 PSI	1 hr. 45 min		1		1,20	1-3/4
W-8-M-92	8½"	Cored concrete masonry; See notes 2,26,18,31,40; Facings on one side; see note 38.	80 PSI	4 hrs		1		1,20	4
W-8-M-93	8½"	Cored concrete masonry; See notes 2,19,26,36,41; Facings on fire side only; see note 38.	80 PSI	2 hrs		1		1,20	2
W-8-M-94	8½"	Cored concrete masonry; see notes 2,18,26,36,41; Facings on fire side only; see note 38.	80 PSI	4 hrs		1		1,20	4
W-8-M-95	8½"	Cored concrete masonry; See notes 2,19,26,34,41; Facings on fire side only; see note 38.	80 PSI	1 hr. 30 min		1		1,20	1½
W-8-M-96	8½"	Cored concrete masonry; See notes 2,26,34,18,41; Facings on one side; see note 38.	80 PSI	3 hrs		1		1,20	3
W-8-M-97	8½"	Cored concrete masonry; See notes 2,19,26,29,41; Facings on fire side only; see note 38.	80 PSI	1 hr. 30 min		1		1,20	1½

## 1.1.4 (cont'd)

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Loc. Mounts
			Load	Time	Pre-EMS-92	EMS-92	Post-EMS-92		
W-8-M-98	8½"	Cored concrete masonry; See notes 2,18,26,29, 41; Facings on one side; see note 38.	80 PSI	2 hrs 30min		1		1,20	2½
W-8-M-99	8½"	Cored concrete masonry; See notes 3,19,23,27, 41; No facings.	80 PSI	1 hr. 15min		1		1,20	1½
W-8-M-100	8½"	Cored concrete masonry; See notes 3,18,23,27, 41; No facings.	80 PSI	3 hrs 30min		1		1,20	¾
W-8-M-101	8½"	Cored concrete masonry; See notes 3,18,26,34,41; Facings 3-3/4" brick face; one side only; see note 38.	80 PSI	6 hrs		1		1,20	6
W-8-M-102	8½"	Cored concrete masonry; See notes 2,19,26,30, 43; Facings on fire side only; see note 38.	80 PSI	30min		1		1,20	½
W-8-M-103	8½"	Cored concrete masonry; See notes 2,18,26,30, 43; Facings on one side only; see note 38.	80 PSI	12min		1		1,20	1/5
W-9-M-104	9"	Cored concrete masonry; see notes 2,18,26,34,40; Facings on both sides; see note 38.	80 PSI	6 hrs.		1		1,20	6
W-9-M-105	9"	Cored concrete masonry; See notes 2,18,26,31,40; Facings on both sides; see note 38.	80 PSI	5 hrs.		1		1,20	5
W-9-M-106	9"	Cored concrete masonry; See notes 2,18,26,36,41; Facings on both sides of wall; see note 38.	80 PSI	5 hrs.		1		1,20	5
W-9-M-107	9"	Cored concrete masonry; See notes 2,18,26,34,41; Facings on both sides; see note 38.	80 PSI	4 hrs.		1		1,20	4
W-9-M-108	9"	Cored concrete masonry; See notes 2,18,26,29,41; Facings on both sides; See note 38.	80 PSI	3 hrs. 30min		1		1,20	¾
W-9-M-109	9"	Cored concrete masonry; See notes 3,19,23,27,40; Facing on fire side only; see note 38.	80 PSI	1 hr. 45min		1		1,20	1-3/4
W-9-M-110	9"	Cored concrete masonry; See notes 3,18,27,23,41; Facings on one side only; see note 38.	80 PSI	4 hrs.		1		1,20	4
W-9-M-111	9"	Cored concrete masonry; See notes 3,18,26,34,41; 2½" brick face on one side only; see note 38.	80 PSI	5 hrs.		1		1,20	5
W-9-M-112	9"	Cored concrete masonry; See notes 2,18,26,30,43; Facings on both sides; see note 38.	80 PSI	30min		1		1,20	½
W-9-M-113	9½"	Cored concrete masonry; See notes 3,18,23,27,41; Facings on both sides; see note 38.	80 PSI	5 hrs.		1		1,20	5
W-8-M-114	8"		200 PSI	5 hrs.			43	22	5

TABLE 1.1.4

## NOTES

1. Tested at NBS under ASA Spec. No. 42-1934 (ASTM C-19-53)
2. 1 unit in wall thickness.
3. 2 units in wall thickness.
4. 2 or 3 units in wall thickness.
5. 2 cells in wall thickness.
6. 3 or 4 cells in wall thickness.
7. 4 or 5 cells in wall thickness.
8. 5 or 6 cells in wall thickness.
9. Minimum % of solid materials in units: 40%.

## 1.1.4 (cont'd)

## Notes

10. Minimum % of solid materials in units: 43%.
11. Minimum % of solid materials in units: 46%.
12. Minimum % of solid materials in units: 48%.
13. Minimum % of solid materials in units: 49%.
14. Minimum % of solid materials in units: 45%.
15. Minimum % of solid materials in units: 51%.
16. Minimum % of solid materials in units: 53%.
17. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
18. Non combustible or no members framed into wall.
19. Combustible members framed into wall.
20. Load: 80 PSI for gross cross sectional area of wall.
21. Portland cement lime mortar.
22. Failure mode thermal.
23. British test.
24. Passed all criteria.
25. Failed by sudden collapse with no preceding signs of impending failure.
26. 1 cell in wall thickness.
27. 2 cells in wall thickness.
28. 3 cells in wall thickness.
29. Minimum % of solid material in concrete units = 52.
30. Minimum % of solid material in concrete units = 54.
31. Minimum % of solid material in concrete units = 55.
32. Minimum % of solid material in concrete units = 57.
33. Minimum % of solid material in concrete units = 60.
34. Minimum % of solid material in concrete units = 62.
35. Minimum % of solid material in concrete units = 65.
36. Minimum % of solid material in concrete units = 70.
37. Minimum % of solid material in concrete units = 76.
38. Not less than 1/2" of 1:3 sanded gypsum plaster.
39. 3 units in wall thickness.
40. Concrete units made with expanded slag or pumice aggregates.
41. Concrete units made with expanded burned clay or shale, crushed limestone, air cooled slag or cinders.
42. Concrete units made with calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
43. Concrete units made with siliceous sand and gravel. 90% or more quartz, chert and dolomite.
44. Load: 120 psi for gross cross-sectional area of wall.
45. Load: 160 psi for gross cross-sectional area of wall.

FIGURE 1.1.5

## WALLS - MASONRY

Thickness - 10" to Less Than 12"

NUMBER OF  
ASSEMBLIES

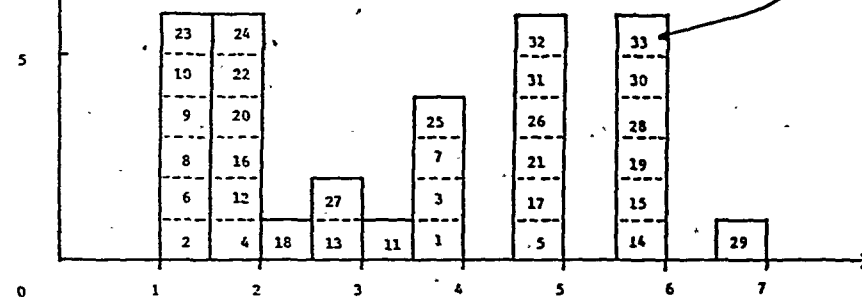
10

5

0

The number in each box  
is keyed to the last  
number in the Item Code  
column in the Table.  
For example:

W-11-M-13



FIRE RESISTANCE RATING (HOURS)

TABLE 1.1.5

## WALLS - MASONRY

Thickness - 10" to Less Than 12"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-10-M-1	10"	Core: Two, 3-3/4", 40X solid clay or shale structural tiles with 2" air space between; Facings: 3/4" portland cement plaster or stucco on both sides.	80 PSI	4 hrs		1		1,20	4
W-10-M-2	10"	Core: Cored concrete masonry, 2" air cavity; See notes 27,34,19,3,40; Facings: None.	80 PSI	1 hr. 30min		1		1,20	1 1/2
W-10-M-3	10"	Cored concrete masonry; See notes 27,34,18,3,40; Facings: None.	80 PSI	4 hrs		1		1,20	4
W-10-M-4	10"	Cored concrete masonry; See notes 26,33,19,2,40; Facings: None.	80 PSI	2 hrs		1		1,20	2
W-10-M-5	10"	Cored concrete masonry; See notes 26,33,18,2,40; No facings.	80 PSI	5 hrs		1		1,20	5
W-10-M-6	10"	Cored concrete masonry; See notes 26,33,19,2,41; No facings.	80 PSI	1 hr. 30min		1		1,20	1 1/2
W-10-M-7	10"	Cored concrete masonry; See notes 26,33,18,2,41; No facings.	80 PSI	4 hrs		1		1,20	4
W-10-M-8	10"	Cored concrete masonry (cavity type 2" air space) See notes 27,34,19,3,42; No facings.	80 PSI	1 hr. 15min		1		1,20	1 1/4
W-10-M-9	10"	Cored concrete masonry (cavity type 2" air space); See notes 3, 27,34,18,42; No facings.	80 PSI	1 hr. 15 min		1		1,20	1 1/4
W-10-M-10	10"	Cored concrete masonry (cavity type 2" air space) See notes 3,19,27,34,41; No facings.	80 PSI	1 hr. 15 min		1		1,20	1 1/4
W-10-M-11	10"	Cored concrete masonry (cavity type 2" air space) See notes 3,18,27,34,41; No facings.	80 PSI	3 hrs 30 min		1		1,20	3 1/2

## 1.1.5 (cont'd)

Thickness - 10" to Less Than 12"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-10-M-12	10"	9" thick concrete block (11-3/4"x 9"x 4 1/4") with 2 - 2" thick voids included; 3/8" P.C. plaster 1/8" neat gypsum.	n/a	1 hr. 53 min			7	23,44	1-3/4
W-10-M-13	10"	Hollow clay tile block wall - 8 1/2" block with 2 - 3" voids in each 8 1/2" section; 3/4" gypsum plaster - each face.	n/a	2 hrs. 42 min			7	23,25	2 1/2
W-10-M-14	10"	2 layers 4 1/2" brick with 1 1/2" air space - no ties sand cement mortar. (Fletton brick - 1910 PSI)	n/a	6 hrs.			7	23,24	6
W-10-M-15	10"	2 layers 4 1/2" thick Fletton brick - 1910 PSI brick; 1 1/2" air space; Ties - 18" O.C. vertical; 3' O.C. - horizontal.	n/a	6 hrs.			7	23,24	6
W-10-M-16	10 1/2"	Cored concrete masonry; 2" air cavity; See note 3,19,27,34,40; Facings: Fire side only; See note 38.	80 PSI	2 hrs.		1		1,20	2
W-10-M-17	10 1/2"	Cored concrete masonry; See notes 3,27,34,18,40; Facings: Only side one; See note 38.	80 PSI	5 hrs.		1		1,20	5
W-10-M-18	10 1/2"	Cored concrete masonry; See notes 2,19,26,33,40; Facings on fire side only; See note 38.	80 PSI	2 hrs 30min		1		1,20	2 1/2
W-10-M-19	10 1/2"	Cored concrete masonry; See notes 2,18,26,33,40; Facings on one side; See note 38.	80 PSI	6 hrs.		1		1,20	6
W-10-M-20	10 1/2"	Cored concrete masonry; See notes 2,19,26,33,41; Facing on fire side of wall only; See note 38.	80 PSI	2 hrs.		1		1,20	2
W-10-M-21	10 1/2"	Cored concrete masonry; See notes 2,18,26,33,41; Facings on one side only; See note 38.	80 PSI	5 hrs.		1		1,20	5
W-10-M-22	10 1/2"	Cored concrete masonry (cavity type 2" air space); See notes 3,19,27,34,42; Facing on fire side only; See note 38.	80 PSI	1 hr. 45min		1		1,20	1-3/4
W-10-M-23	10 1/2"	Cored concrete masonry (cavity type 2" air space); See notes 3,18,27,34,42; Facings on one side only; See note 38.	80 PSI	1 hr. 15min		1		1,20	1 1/2
W-10-M-24	10 1/2"	Cored concrete masonry (cavity type 2" air space); See notes 3,27,34,19,41; Facings on fire side only; See note 38.	80 PSI	2 hrs.		1		1,20	2
W-10-M-25	10 1/2"	Cored concrete masonry (cavity type 2" air space); See notes 3,18,27,34,41; Facings on one side only; See note 38.	80 PSI	4 hrs.		1		1,20	4
W-10-M-26	10-5/8"	Core: 8", 40% solid tile plus 2" furring tile. 5/8" sanded gypsum plaster between tile types; Facings on both sides 3/4" portland cement plaster or stucco.	80 PSI	5 hrs.		1		1,20	5
W-10-M-27	10-5/8"	Core: 8", 40% solid tile plus 2" furring tile. 5/8" sanded gypsum plaster between tile types. Facings on one side 3/4" portland cement plaster or stucco.	80 PSI	3 hrs 30min		1		1,20	3 1/2
W-11-M-28	11"	Cored concrete masonry; See notes 3,18,27,34,40; Facings on both sides; See note 38.	80 PSI	6 hrs.		1		1,20	6
W-11-M-29	11"	Cored concrete masonry; See notes 2,18,26,33,40; Facings on both sides; See note 38.	80 PSI	7 hrs.		1		1,20	7
W-11-M-30	11"	Cored concrete masonry; See notes 2,18,26,33,41; Facings on both sides of wall; See note 38.	80 PSI	6 hrs.		1		1,20	6
W-11-M-31	11"	Cored concrete masonry (cavity type 2" air space); See notes 3,18,27,34,42; Facings on both sides; See note 38.	80 PSI	5 hrs.		1		1,20	5
W-11-M-32	11"	Cored concrete masonry (cavity type 2" air space). See notes 3,18,27,34,41; Facings on both sides; See note 38.	80 PSI	5 hrs.		1		1,20	5
W-11-M-33	11"	2 layers brick (4 1/2" flatton 2428 PSI) 2" air space; Galv. ties - 18" O.C. - Horizontal; 3' O.C. - Vertical.	3 ton/ft.	6 hrs			7	23,24	6



TABLE 1.1.5

## NOTES

1. Tested at NBS - ASA Spec. A2-1934.
2. One unit in wall thickness.
3. Two units in wall thickness.
4. Two or three units in wall thickness.
5. Two cells in wall thickness.
6. Three or four cells in wall thickness.
7. Four or five cells in wall thickness.
8. Five or six cells in wall thickness.
9. Minimum % of solid materials in units: 40%.
10. Minimum % of solid materials in units: 43%.
11. Minimum % of solid materials in units: 46%.
12. Minimum % of solid materials in units: 48%.
13. Minimum % of solid materials in units: 49%.
14. Minimum % of solid materials in units: 45%.
15. Minimum % of solid materials in units: 51%.
16. Minimum % of solid materials in units: 53%.
17. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
18. Non-combustible or no members framed into wall.
19. Combustible members framed into wall.
20. Load: 80PSI for gross cross sectional area.
21. Portland cement - lime mortar.
22. Failure mode - thermal.
23. British test.
24. Passed all criteria.
25. Failed by sudden collapse with no preceding signs of impending failure.
26. One cell in wall thickness.
27. Two cells in wall thickness.
28. Three cells in wall thickness.
29. Minimum % of solid material in concrete units: 52%.
30. Minimum % of solid material in concrete units: 54%.
31. Minimum % of solid material in concrete units: 55%.
32. Minimum % of solid material in concrete units: 57%.
33. Minimum % of solid material in concrete units: 60%.
34. Minimum % of solid material in concrete units: 62%.
35. Minimum % of solid material in concrete units: 65%.
36. Minimum % of solid material in concrete units: 70%.
37. Minimum % of solid material in concrete units: 76%.
38. Not less than 1/2" of 1:3 sanded gypsum plaster.
39. Three units in wall thickness.
40. Concrete units made with expanded slag or pumice aggregates.
41. Concrete units made with expanded burned clay or shale, crushed limestone, air cooled slag or cinders.
42. Concrete units made with calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.

FIGURE 1.1.6

## WALLS - MASONRY

Thickness - 12" To Less Than 14"

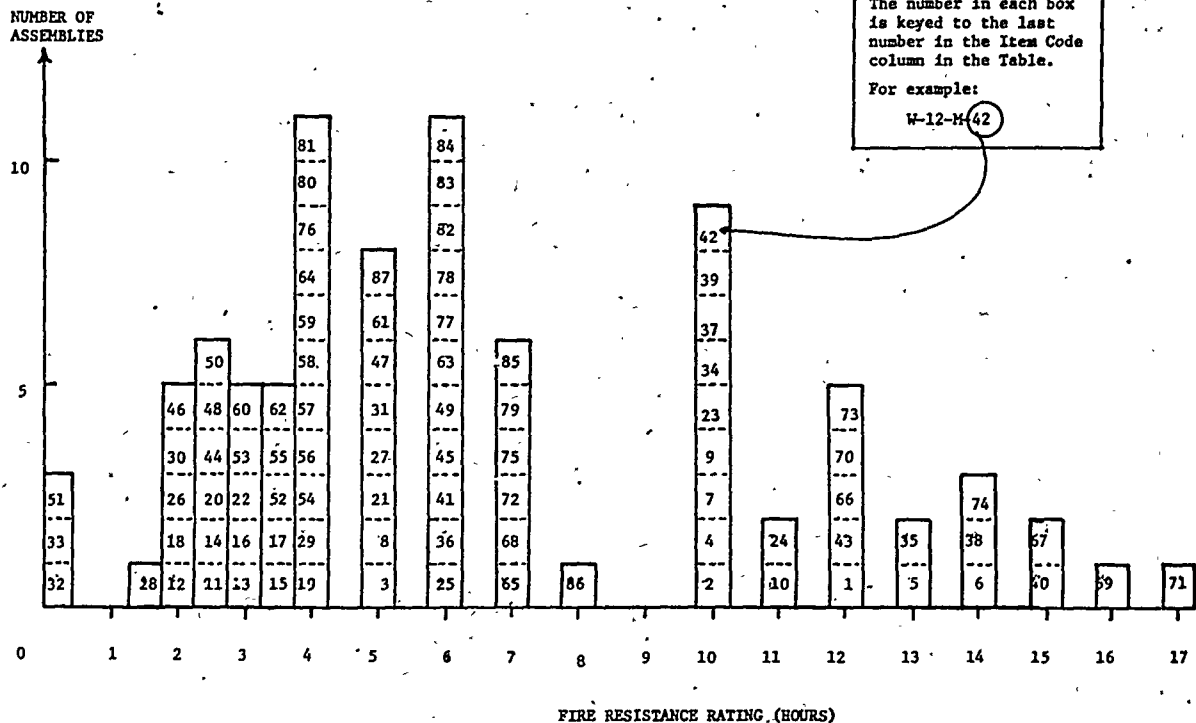


TABLE 1.1.6

## WALLS - MASONRY

Thickness - 12" to Less Than 14"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-12-M-1	12"	Core: Solid clay or shale brick; No facings.	n/a	12 hr		1		1	12
W-12-M-2	12"	Core: Solid clay or shale brick; No facings.	160 PSI	10 hr		1		1,44	10
W-12-M-3	12"	Core: Hollow Rolo of clay or shale; No facings.	160 PSI	5 hr.		1		1,44	5
W-12-M-4	12"	Core: Hollow Rolo of Clay or Shale; No facings.	160 PSI	10 hr		1		1,44	10
W-12-M-5	12"	Core: Concrete brick; No facings.	160 PSI	13 hr		1		1,44	13
W-12-M-6	12"	Core: Sand-lime brick; No facings.	n/a	14 hr		1		1	14
W-12-M-7	12"	Core: Sand-lime brick; No facings.	160 PSI	10 hr		1		1,44	10
W-12-M-8	12"	Cored clay or shale bricks; Units in wall thickness: 1; Cells in wall thickness: 2; Min. % solids: 70; No facings.	120 PSI	5 hr.		1		1,45	5
W-12-M-9	12"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 3; Min. % solids: 87; No facings.	160 PSI	10 hr		1		1,44	10
W-12-M-10	12"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 3; Min. % solids: 87; No facings.	n/a	11 hr		1		1	11
W-12-M-11	12"	Core: Clay or shale structural tile; See notes 2,6,9,18; No facings.	80 PSI	2 1/2 hr.		1		1,20	2 1/2
W-12-M-12	12"	Core: Clay or shale structural tile; See notes 2,4,9,19; No facings.	80 PSI	2 hr.		1		1,20	2

## 1.1.6 (cont'd)

Thickness - 12" to Less Than 14"

Item Code	Thickness	Construction Details	Performance		Reference Number			Rec Notes	Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-12-M-13	12"	Core: Clay or shale structural tile; See notes 2,6,14,19; No facings.	80 PSI	3 hr.		1		1,20	3
W-12-M-14	12"	Core: Clay or shale structural tile; See notes 2,6,14,18; No facings.	80 PSI	2 1/2 hr.		1		1,20	2 1/2
W-12-M-15	12"	Core: Clay or shale structural tile; See notes 2,4,13,18; No facings.	80 PSI	3 1/2 hr.		1		1,20	3 1/2
W-12-M-16	12"	Core: Clay or shale structural tile; See notes 2,4,13,19; No facings.	80 PSI	3 hr.		1		1,20	3
W-12-M-17	12"	Core: Clay or shale structural tile; See notes 3,6,9,18; No facings.	80 PSI	3 1/2 hr.		1		1,20	3 1/2
W-12-M-18	12"	Core: Clay or shale structural tile; See notes 3,6,9,19; No facings.	80 PSI	2 hr.		1		1,20	2
W-12-M-19	12"	Core: Clay or shale structural tile; See notes 3,6,14,18; No facings.	80 PSI	4 hr.		1		1,20	4
W-12-M-20	12"	Core: Clay or shale structural tile; See notes 3,6,14,19; No facings.	80 PSI	2 1/2 hr.		1		1,20	2 1/2
W-12-M-21	12"	Core: Clay or shale structural tile; See notes 3,6,16,18; No facings.	80 PSI	5 hr.		1		1,20	5
W-12-M-22	12"	Core: Clay or shale structural tile; See notes 3,6,16,19; No facings.	80 PSI	3 hr.		1		1,20	3
W-12-M-23	12"	Core: 8", 70% solid clay or shale structural tile; 4" brick facing on one side.	80 PSI	10 hr.		1		1,20	10
W-12-M-24	12"	Core: 8", 70% solid clay or shale structural tile; 4" brick facing on one side.	n/a	11 hr.		1		1	11
W-12-M-25	12"	Core: 8", 40% solid clay or shale structural tile; 4" brick facing on one side.	80 PSI	6 hr.		1		1,20	6
W-12-M-26	12"	Cored concrete masonry; See notes 1,9,15,16 & 20; No facings.	80 PSI	2 hr.		1		1,20	2
W-12-M-27	12"	Cored concrete masonry; See notes 26,34,18,2,41; No facings.	80 PSI	5 hr.		1		1,20	5
W-12-M-28	12"	Cored concrete masonry; See notes 26,31,19,2,41; No facings.	80 PSI	1 1/2 hr.		1		1,20	1 1/2
W-12-M-29	12"	Cored concrete masonry; See notes 26,31,18,2,41; No facings.	80 PSI	4 hr.		1		1,20	4
W-12-M-30	12"	Cored concrete masonry; See notes 27,31,19,3,43; No facings.	80 PSI	2 hr.		1		1,20	2
W-12-M-31	12"	Cored concrete masonry; See notes 27,31,18,3,43; No facings.	80 PSI	5 hr.		1		1,20	5
W-12-M-32	12"	Cored concrete masonry; See notes 26,32,19,2,43; No facings.	80 PSI	25 min.		1		1,20	1/3
W-12-M-33	12"	Cored concrete masonry; See notes 26,32,18,2,43; No facings.	80 PSI	25 min.		1		1,20	1/3
W-12-M-34	12 1/2"	Core: Solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	160 PSI	10 hr.		1		1,44	10
W-12-M-35	12 1/2"	Core: Solid clay or shale brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	n/a	13 hr.		1		1	13
W-12-M-36	12 1/2"	Core: Hollow Roloek of clay or shale; 1/2" of 1:3 sanded gypsum plaster facing on one side.	160 PSI	6 hr.		1		1,44	6
W-12-M-37	12 1/2"	Core: Hollow Roloek of clay or shale; 1/2" of 1:3 sanded gypsum plaster facing on one side.	160 PSI	10 hr.		1		1,44	10
W-12-M-38	12 1/2"	Core: Concrete; 1/2" of 1:3 sanded gypsum plaster facing on one side.	160 PSI	14 hr.		1		1,44	14
W-12-M-39	12 1/2"	Core: Sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	160 PSI	10 hr.		1		1,44	10
W-12-M-40	12 1/2"	Core: Sand-lime brick; 1/2" of 1:3 sanded gypsum plaster facing on one side.	n/a	15 hr.		1		1	15

## 1.1.6 (cont'd)

Thickness - 12" to Less Than 14"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-12-M-41	12½"	Units in wall thickness: 1; Cells in wall thickness: 2; Min. % solids: 70; Cored clay or shale brick; ½" of 1:3 sanded gypsum plaster facing on one side.	120 PSI	6 hr.		1		1,45	6
W-12-M-42	12½"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 3; Min. % solids: 87; ½" of 1:3 sanded gypsum plaster facings on one side.	160 PSI	10 hr.		1		1,44	10
W-12-M-43	12½"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 3; Min. % solids: 87; ½" of 1:3 sanded gypsum plaster facing on one side.	n/a	12 hr.		1		1	12
W-12-M-44	12½"	Cored concrete masonry; See notes 26,34,19,2,41 Facing on fire side only - See note 38.	80 PSI	2½ hr.		1		1,20	2½
W-12-M-45	12½"	Cored concrete masonry; See notes 26,34,18,39,2,41; Facing on one side only - See note 38.	80 PSI	6 hr.		1		1,20	6
W-12-M-46	12½"	Cored concrete masonry; See notes 26,31,19,2,41 Facing on fire side only - see note 38.	80 PSI	2 hr.		1		1,20	2
W-12-M-47	12½"	Cored concrete masonry; See notes 26,31,18,2,41 Facings one side of wall only - See note 38.	80 PSI	5 hr.		1		1,20	5
W-12-M-48	12½"	Cored concrete masonry; See notes 27,31,19,3,43 Facing on fire side only - See note 38.	80 PSI	2½ hr.		1		1,20	2½
W-12-M-49	12½"	Cored concrete masonry; See notes 27,31,18,3,43; Facing one side only - See note 38.	80 PSI	6 hr.		1		1,20	6
W-12-M-50	12½"	Cored concrete masonry; See notes 26,32,19,2,43 Facing on fire side only - See note 38.	80 PSI	2½ hr.		1		1,20	2½
W-12-M-51	12½"	Cored concrete masonry; See notes 26,32,18,2,43 Facing one side only - See note 38.	80 PSI	25 min.		1		1,20	1/3
W-12-M-52	12-5/8"	Clay or shale structural tile; See notes 2,6,9,18; Facing: Side 1 - See note 17; Side 2: none	80 PSI	3½ hr.		1		1,20	3½
W-12-M-53	12-5/8"	Clay or shale structural tile; See notes 2,6,9,19; Facing on fire side only; See note 17.	80 PSI	3 hr.		1		1,20	3
W-12-M-54	12-5/8"	Clay or shale structural tile; See notes 2,6,14,19; Facing: Side 1 - See note 17; Side 2 - none.	80 PSI	4 hr.		1		1,20	4
W-12-M-55	12-5/8"	Clay or shale structural tile; See notes 2,6,14,18; Facings on exposed side only - See note 17.	80 PSI	3½ hr.		1		1,20	3½
W-12-M-56	12-5/8"	Clay or shale structural tile; See notes 2,4,13,18; Facings: Side 1 - See note 17; Side 2 - None	80 PSI	4 hr.		1		1,20	4
W-12-M-57	12-5/8"	Clay or shale structural tile; See notes 1,4,13,19; Facings on fire side only; See note 17.	80 PSI	4 hr.		1		1,20	4
W-12-M-58	12-5/8"	Clay or shale structural tile; See notes 3,6,9,18; Facings: Side 1 - See note 17; Side 2: none	80 PSI	4 hr.		1		1,20	4
W-12-M-59	12-5/8"	Clay or shale structural tile; See notes 3,6,9,19; Facings on fire side only - See note 17.	80 PSI	3 hr.		1		1,20	3
W-12-M-60	12-5/8"	Clay or shale structural tile; See notes 3,6,14,18; Facings: Side 1 - See note 17; Side 2: None.	80 PSI	5 hr.		1		1,20	5
W-12-M-61	12-5/8"	Clay or shale structural tile; See notes 3,6,14,19; Facings: fire side only; See note 17.	80 PSI	3 hr. 30min.		1		1,20	3½
W-12-M-62	12-5/8"	Clay or shale structural tile; See notes 3,6,16,18; Facings: Side 1 - See note 17; Side 2 - None.	80 PSI	6 hr.		1		1,20	6
W-12-M-63	12-5/8"	Clay or shale structural tile; See notes 3,6,16,19; Facings on fire side only; See note 17.	80 PSI	4 hr.		1		1,20	4
W-12-M-64	12-5/8"	Core: 8", 40% solid clay or shale structural tile; Facings 4" brick plus 5/8" of 1:3 sanded gypsum plaster on one side.	80 PSI	7 hr.		1		1,20	7

## 1.1.6 (cont'd)

Thickness - 12" to Less Than 14"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rac Hours
			Load	Time	Pre-BMS-92	BMS -92	Post-BMS-92		
W-13-M-65	13"	Core: Solid clay or shale brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facing on both sides.	160 PSI	12 hr.		1		1,44	12
W-13-M-66	13"	Core: Solid clay or shale brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facing on both sides.	n/a	15 hr.		1		1,20	15
W-13-M-67	13"	Core: Solid clay or shale brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	n/a	15 hr.		1		1	15
W-13-M-68	13"	Core: Hollow Rolok of clay or shale; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	80 PSI	7 hr.		1		1,20	7
W-13-M-69	13"	Core: Concrete brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	160 PSI	16 hr.		1		1,44	16
W-13-M-70	13"	Core: Sand-lime brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	160 PSI	12 hr.		1		1,44	12
W-13-M-71	13"	Core: Sand-lime brick; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	n/a	17 hr.		1		1	17
W-13-M-72	13"	Cored clay or shale bricks; units in wall thickness: 1; Cells in wall thickness: 2; Min. X solids: 70; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	120 PSI	7 hr.		1		1,45	7
W-13-M-73	13"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 3; Min. X solids: 87; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	160 PSI	12 hr.		1		1,44	12
W-13-M-74	13"	Cored clay or shale bricks; Units in wall thickness: 3; Cells in wall thickness: 2; Min. X solids: 87; $\frac{1}{4}$ " of 1:3 sanded gypsum plaster facings on both sides.	n/a	14 hr.		1		1	14
W-13-M-75	13"	Cored concrete masonry; See notes 28,23,18,39, 41; No facings.	80 PSI	7 hr.		1		1,20	7
W-13-M-76	13"	Cored concrete masonry; See notes 28,23,19,39, 41; No facings	80 PSI	4 hr.		1		1,20	4
W-13-M-77	13"	Cored concrete masonry; See notes 27,31,18,3, 43; Facings on both sides; See note 38.	80 PSI	6 hr.		1		1,20	6
W-13-M-78	13"	Cored concrete masonry; See notes 26,31,18,2, 41; Facings on both sides; See note 38.	80 PSI	6 hr.		1		1,20	6
W-13-M-79	13"	Cored concrete masonry; See notes 26,34,18,2, 41; Facings on both sides of wall; See note 38.	80 PSI	7 hr.		1		1,20	7
W-13-M-80	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 2,6,9,18; Facings: See note 17 for both sides.	80 PSI	4 hr.		1		1,20	4
W-13-M-81	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 2,6,14,19; Facings: See note 17 for both sides.	80 PSI	4 hr.		1		1,20	4
W-13-M-82	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 2,4,13,18; Facings: See note 17 for both sides.	80 PSI	6 hr.		1		1,20	6
W-13-M-83	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 3,6,9,18; Facings: See note 17 for both sides.	80 PSI	6 hr.		1		1,20	6
W-13-M-84	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 3,6,14,18; Facings: See note 17 for both sides.	80 PSI	6 hr.		1		1,20	6
W-13-M-85	13 $\frac{1}{4}$ "	Core: Clay or shale structural tile; See notes 3,6,16,18; Facings: See note 17 for both sides.	80 PSI	7 hr.		1		1,20	7
W-13-M-86	13 $\frac{1}{4}$ "	Cored concrete masonry; See notes 28,23,18,39, 41; Facing on one side only; See note 38.	80 PSI	8 hr.		1		1,20	8
W-13-M-87	13 $\frac{1}{4}$ "	Cored concrete masonry; See notes 28,23,19,39, 41; Facing on fire side only; See note 38.	80 PSI	5 hr.		1		1,20	5

TABLE 1.1.6

## NOTES

1. Tested at NBS - ASA Spec. A2-1934.
2. One unit in wall thickness.
3. Two units in wall thickness.
4. Two or three units in wall thickness.
5. Two cells in wall thickness.
6. Three or four cells in wall thickness.
7. Four or five cells in wall thickness.
8. Five or six cells in wall thickness.
9. Minimum % of solid materials in units: 40%.
10. Minimum % of solid materials in units: 43%.
11. Minimum % of solid materials in units: 46%.
12. Minimum % of solid materials in units: 48%.
13. Minimum % of solid materials in units: 49%.
14. Minimum % of solid materials in units: 45%.
15. Minimum % of solid materials in units: 51%.
16. Minimum % of solid materials in units: 53%.
17. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
18. Non-combustible or no members framed into wall.
19. Combustible members framed into wall.
20. Load: 80PSI for gross area.
21. Portland cement - lime mortar.
22. Failure mode - thermal.
23. British test.
24. Passed all criteria.
25. Failed by sudden collapse with no preceding signs of impending failure.
26. One cell in wall thickness.
27. Two cells in wall thickness.
28. Three cells in wall thickness.
29. Minimum % of solid material in concrete units: 52%.
30. Minimum % of solid material in concrete units: 54%.
31. Minimum % of solid material in concrete units: 55%.
32. Minimum % of solid material in concrete units: 57%.
33. Minimum % of solid material in concrete units: 60%.
34. Minimum % of solid material in concrete units: 62%.
35. Minimum % of solid material in concrete units: 65%.
36. Minimum % of solid material in concrete units: 70%.
37. Minimum % of solid material in concrete units: 76%.
38. Not less than 1/2" of 1:3 sanded gypsum plaster.
39. Three units in wall thickness.
40. Concrete units made with expanded slag or pumice aggregates.
41. Concrete units made with expanded burned clay or shale, crushed limestone, air cooled slag or cinders.
42. Concrete units made with calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
43. Concrete units made with siliceous sand and gravel. 90% or more quartz, chert, or flint.
44. Load: 160 psi of gross wall cross-sectional area.
45. Load: 120 psi of gross wall cross-sectional area.

FIGURE 1.1.7

## WALLS - MASONRY

Thickness - 14" or More

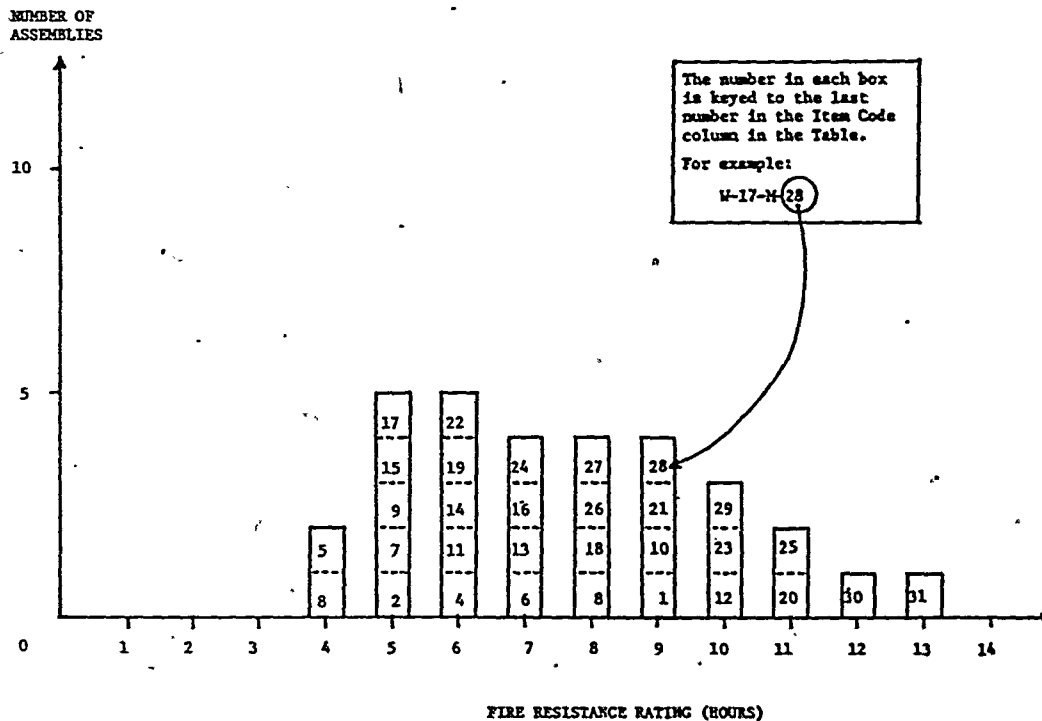


TABLE 1.1.7

## WALLS - MASONRY

Walls - 14" or More Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92	
W-14-M-1	14"	Core: Cored concrete masonry; See notes 18,28, 35,39,41; Facings: Both sides, see note 38.	80 PSI	9 hr.		1		1,20 9
W-16-M-2	16"	Core: Clay or shale structural tile; See notes 4,7,9,19; No facings.	80 PSI	5 hr.		1		1,20 5
W-16-M-3	16"	Core: Clay or shale structural tile; See notes 4,7,9,19; No facings.	80 PSI	4 hr.		1		1,20 4
W-16-M-4	16"	Core: Clay or shale structural tile; See notes 4,7,10,18; No facings.	80 PSI	6 hr.		1		1,20 6
W-16-M-5	16"	Core: Clay or shale structural tile; See notes 4,7,10,19; No facings.	80 PSI	4 hr.		1		1,20 4
W-16-M-6	16"	Core: Clay or shale structural tile; See notes 4,7,11,18; No facings.	80 PSI	7 hr.		1		1,20 7
W-16-M-7	16"	Core: Clay or shale structural tile; See notes 4,7,11,19; No facings.	80 PSI	5 hr.		1		1,20 5
W-16-M-8	16"	Core: Clay or shale structural tile; See notes 4,8,13,18; No facings.	80 PSI	8 hr.		1		1,20 8
W-16-M-9	16"	Core: Clay or shale structural tile; See notes 4,8,13,19; No facings.	80 PSI	5 hr.		1		1,20 5

## 1.1.7 (cont'd)

## Walls - 14" or More Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-16-M-10	16"	Clay or shale structural tile core; see notes 4,8,15,18; No facings.	80 PSI	9 hr.		1		1,20	9
W-16-M-11	16"	Clay or shale structural tile core; See notes 3,7,14,18; No facings.	80 PSI	6 hr.		1		1,20	6
W-16-M-12	16"	Clay or shale structural tile core; See notes 4,8,16,18; No facings.	80 PSI	10 hr.		1		1,20	10
W-16-M-13	16"	Clay or shale structural tile core; See notes 4,6,16,19; No facings.	80 PSI	7 hr.		1		1,20	7
W-16-M-14	16-5/8"	Clay or shale structural tile core; See notes 4,7,9,18; Facings: Side 1 - See note 17; Side 2 None.	80 PSI	6 hr.		1		1,20	6
W-16-M-15	16-5/8"	Clay or shale structural tile core; See notes 4,7,9,19; Facings: Fire side only; See note 17.	80 PSI	5 hr.		1		1,20	5
W-16-M-16	16-5/8"	Clay or shale structural tile core; See notes 4,7,10,18; Facings: Side 1-See note 17; Side 2-None.	80 PSI	7 hr.		1		1,20	7
W-16-M-17	16-5/8"	Clay or shale structural tile core; See notes 4,7,10,19; Facings: Fire side only; See note 17.	80 PSI	5 hr.		1		1,20	5
W-16-M-18	16-5/8"	Clay or shale structural tile core; See notes 4,7,11,18; Facings: Side 1-See note 17; Side 2 None.	80 PSI	8 hr.		1		1,20	8
W-16-M-19	16-5/8"	Clay or shale structural tile core; See notes 4,7,11,19; Facings: Fire side only; See note 17.	80 PSI	6 hr.		1		1,20	6
W-16-M-20	16-5/8"	Clay or shale structural tile core; See notes 4,8,13,18; Facings: Side 1-See note 17; Side 2-Same as side 1.	80 PSI	11 hr.		1		1,20	11
W-16-M-21	16-5/8"	Clay or shale structural tile core; See notes 4,8,13,18; Facings: Side 1-See note 17; Side 2 None.	80 PSI	9 hr.		1		1,20	9
W-16-M-22	16-5/8"	Clay or shale structural tile core; See notes 4,8,13,19; Facings: Fire side only; See note 17.	80 PSI	6 hr.		1		1,20	6
W-16-M-23	16-5/8"	Clay or shale structural tile core; See notes 4,8,13,18; Facings: Side 1-See note 17; Side 2 None.	80 PSI	10 hr.		1		1,20	10
W-16-M-24	16-5/8"	Clay or shale structural tile core; See notes 4,8,15,19; Facings: Fire side only; See note 17.	80 PSI	7 hr.		1		1,20	7
W-16-M-25	16-5/8"	Clay or shale structural tile core; See notes 4,6,16,18; Facings: Side 1-See note 17; Side 2-None.	80 PSI	11 hr.		1		1,20	11
W-16-M-26	16-5/8"	Clay or shale structural tile core; See notes 4,6,16,19; Facings: Fire side only; See note 17.	80 PSI	8 hr.		1		1,20	8
W-17-M-27	17 1/2"	Clay or shale structural tile core; See notes 4,7,9,18; Facings: Side 1 & 2--See note 17.	80 PSI	8 hr.		1		1,20	8
W-17-M-28	17 1/2"	Clay or shale structural tile core; See notes 4,7,10,18; Facings: Side 1 & 2: See note 17.	80 PSI	9 hr.		1		1,20	9
W-17-M-29	17 1/2"	Clay or shale structural tile core; See notes 4,7,11,18; Facings: Side 1 & 2: See note 17.	80 PSI	10 hr.		1		1,20	10
W-17-M-30	17 1/2"	Clay or shale structural tile core; See notes 4,8,15,18; Facings: Side 1 & 2: See note 17.	80 PSI	12 hr.		1		1,20	12
W-17-M-31	17 1/2"	Clay or shale structural tile core; See notes 4,6,16,18; Facings: Side 1 & 2: See note 17.	80 PSI	13 hr.		1		1,20	13



## 1.1.7

## NOTES

1. Tested at NBS - ASA Spec. A2-1934.
2. One unit in wall thickness.
3. Two units in wall thickness.
4. Two or three units in wall thickness.
5. Two cells in wall thickness.
6. Three or four cells in wall thickness.
7. Four or five cells in wall thickness.
8. Five or six cells in wall thickness.
9. Minimum % of solid materials in units: 40%.
10. Minimum % of solid materials in units: 43%.
11. Minimum % of solid materials in units: 46%.
12. Minimum % of solid materials in units: 48%.
13. Minimum % of solid materials in units: 49%.
14. Minimum % of solid materials in units: 45%.
15. Minimum % of solid materials in units: 51%.
16. Minimum % of solid materials in units: 53%.
17. Not less than 5/8" thickness of 1:3 sanded gypsum plaster.
18. Non-combustible or no members framed into wall.
19. Combustible members framed into wall.
20. Load: 80 PSI for gross area.
21. Portland cement - lime mortar.
22. Failure mode - thermal.
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24. Passed all criteria.
25. Failed by sudden collapse with no preceding signs of impending failure.
26. One cell in wall thickness.
27. Two cells in wall thickness.
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31. Minimum % of solid material in concrete units: 55%.
32. Minimum % of solid material in concrete units: 57%.
33. Minimum % of solid material in concrete units: 60%.
34. Minimum % of solid material in concrete units: 62%.
35. Minimum % of solid material in concrete units: 65%.
36. Minimum % of solid material in concrete units: 70%.
37. Minimum % of solid material in concrete units: 76%.
38. Not less than 1/2" of 1:3 sanded gypsum plaster.
39. Three units in wall thickness.
40. Concrete units made with expanded slag or pumice aggregates.
41. Concrete units made with expanded burned clay or shale, crushed limestone, air cooled slag or cinders.
42. Concrete units made with calcareous sand and gravel. Coarse aggregate, 60% or more calcite and dolomite.
43. Concrete units made with siliceous sand and gravel. 90% or more quartz, chert, or flint.

FIGURE 1.2.1

## WALLS - METAL FRAME

Thickness 0" To Less Than 4"

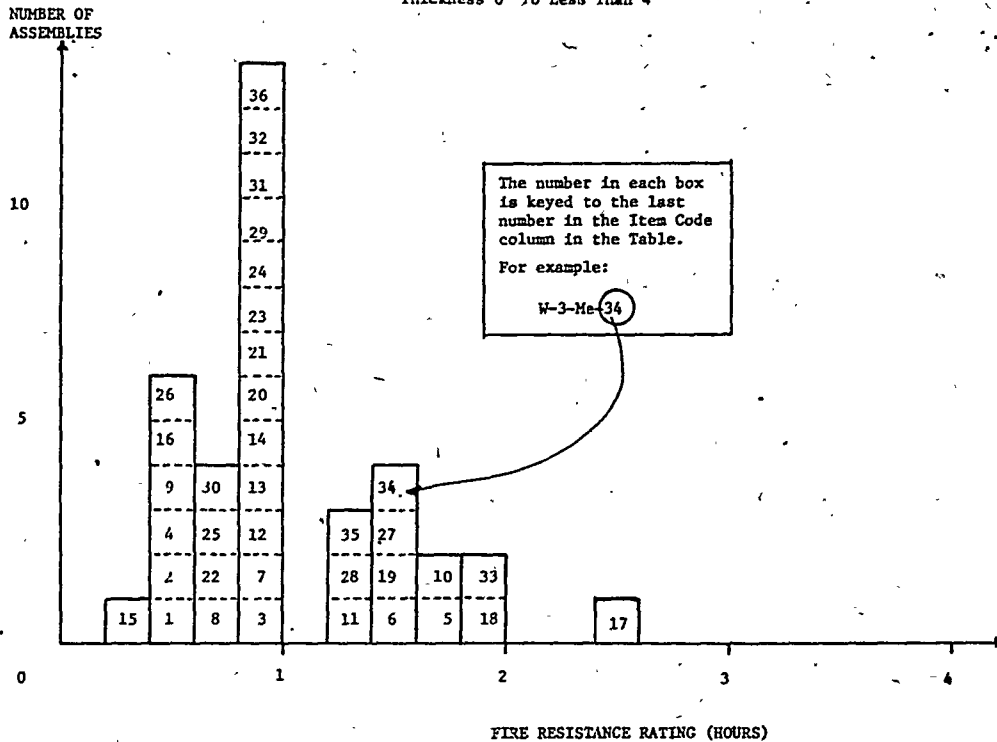


TABLE 1.2.1

## WALLS - METAL FRAME

Thickness 0" to Less Than 4"

Item Code	Thickness	Construction Details	Performance		Reference Number			Rec. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92	
W-3-Me-1	3"	Core: Steel channels having 3 rows of 4"x 1/8" staggered slots in web. Core filled with heat expanded vermiculite weighing 1.5 lb/ft <sup>2</sup> of wall area; Facings: Side 1 - 18 gage steel, spot welded to core; Side 2 - Same as side 1.	n/a	25min		1		1/3
W-3-Me-2	3"	Core: Steel channels having 3 rows of 4"x 1/8" staggered slots in web; core filled with heat expanded vermiculite weighing 2 lb/ft <sup>2</sup> of wall area; Facings: Side 1 and 2 - 18 gage steel, spot welded to core.	n/a	30min		1		1/4
W-2-Me-3	2 1/2"	Solid partition - 3/8" tension rods (vertical) 3' O.C. with metal lath; Scratch coat - cement/sand/lime plaster; float coats - cement/sand/lime plaster; finish coats - neat gypsum plaster.	n/a	1 hr.			7	1
W-2-Me-4	2"	Solid wall: steel channel per note 1, 2" thickness of 1:2, 1:3 portland cement on metal lath.	n/a	30min		1		1/4
W-2-Me-5	2"	Solid wall: steel channel per note 1, 2" thickness of neat gypsum plaster on metal lath.	n/a	1 hr. 45 min		1		1-3/4
W-2-Me-6	2"	Solid wall: steel channel per note 1, 2" thickness of 1:1/2, 1:1/2 gypsum plaster on metal lath.	n/a	1 hr. 30 min		1		1 1/2

## 1.2.1 (cont'd)

## Thickness 0" to Less Than 4"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-2-Me-7	2"	Solid wall: steel channel per note 2, 2" thickness of 1:1, 1:1 gypsum plaster on metal lath.	n/a	1 hr.		1			1
W-2-Me-8	2"	Solid wall: steel channel per note 1, 2" thickness of 1:2, 1:2 gypsum plaster on metal lath.	n/a	45 min		1			3/4
W-2-Me-9	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:3 portland cement on metal lath.	n/a	30 min		1			1/2
W-2-Me-10	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of neat gypsum plaster on metal lath.	n/a	2 hrs.		1			2
W-2-Me-11	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:1/2, 1:1/2 gypsum plaster on metal lath.	n/a	1 hr. 45 min		1			1-3/4
W-2-Me-12	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:1, 1:1 gypsum plaster on metal lath.	n/a	1 hr. 15 min		1			1 1/2
W-2-Me-13	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:2 gypsum plaster on metal lath.	n/a	1 hr.		1			1
W-2-Me-14	2 1/2"	Solid wall: steel channel per note 1; 2 1/2" thickness of 4.5:1:7, 4.5:1:7 portland cement, sawdust, and sand sprayed on wire mesh. (see note 3 for wire mesh).	n/a	1 hr.		1			1
W-2-Me-15	2 1/2"	Solid wall: steel channel per note 2; 2 1/2" thickness of 1:4, 1:4 portland cement spray on wire mesh (per note 3).	n/a	20 min		1			1/3
W-2-Me-16	2 1/2"	Solid Wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:3 portland cement on metal lath.	n/a	30min		1			1/2
W-2-Me-17	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of neat gypsum plaster on metal lath.	n/a	2 hr. 30 min		1			2 1/2
W-2-Me-18	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:1/2, 1:1/2 gypsum plaster on metal lath.	n/a	2 hr.		1			2
W-2-Me-19	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:1, 1:1 gypsum plaster on metal lath.	n/a	1 hr. 30min		1			1 1/2
W-2-Me-20	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:2, gypsum plaster on metal lath.	n/a	1 hr.		1			1
W-2-Me-21	2 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:3 gypsum plaster on metal lath.	n/a	1 hr.		1			1
W-3-Me-22	3"	Core: steel channels per note 2, 1:2, 1:2 gypsum plaster on 3/4" soft asbestos lath, plaster thickness 2".	n/a	45min		1			3/4
W-3-Me-23	3 1/2"	Solid wall: steel channel per note 2, 2 1/2" thickness of 1:2, 1:2 gypsum plaster on 3/4" asbestos lath.	n/a	1 hr.		1			1
W-3-Me-24	3 1/2"	Solid wall: steel channel per note 2, lath over and 1:2 1/2, 1:2 1/2 gypsum plaster on 1" magnesium oxysulfate wood fiberboard, plaster thickness 2 1/2".	n/a	1 hr.		1			1

## 1.2.1 (cont'd)

## Thickness 0" to Less than 4"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-3-Me-25	3/4"	Core: steel studs, note 4; Facings: 3/4" thickness of 1:1/30:2, 1:1/30:3 portland cement and asbestos fiber plaster.	n/a	45min		1			3/4
W-3-Me-26	3/4"	Core: steel studs, note 4; Facings: both sides 3/4" thickness of 1:2, 1:3 portland cement.	n/a	30min		1			1/4
W-3-Me-27	3/4"	Core: steel studs per note 4; Facings: both sides 3/4" thickness of neat gypsum plaster.	n/a	1 hr. 30min		1			1 1/4
W-3-Me-28	3/4"	Core: steel studs per note 4; Facings: both sides 3/4" thickness of 1:1/2, 1:1/2 gypsum plaster.	n/a	1 hr. 15min		1			1 1/4
W-3-Me-29	3/4"	Core: steel studs, note 4; Facings: both sides 3/4" thickness of 1:2, 1:2 gypsum plaster.	n/a	1 hr.		1			1
W-3-Me-30	3/4"	Core: steel studs, note 4; Facings: both sides 3/4" thickness of 1:2, 1:3 gypsum plaster.	n/a	45min		1			3/4
W-3-Me-31	3-3/4"	Core: steel studs, note 4; Facings: both sides 7/8" thickness of 1:1/30:2, 1:1/30:3 portland cement and asbestos fiber plaster.	n/a	1 hr.		1			1
W-3-Me-32	3-3/4"	Core: steel studs, note 4; Facings: both sides 7/8" thickness of 1:2, 1:3 portland cement.	n/a	45 min		1			3/4
W-3-Me-33	3-3/4"	Core: steel studs, note 4; Facings: both sides 7/8" thickness of neat gypsum plaster.	n/a	2 hr.		1			2
W-3-Me-34	3-3/4"	Core: steel studs per note 4; Facings: both sides 7/8" thickness of 1:1/2, 1:1/2 gypsum plaster.	n/a	1 hr. 30min		1			1 1/4
W-3-Me-35	3-3/4"	Core: steel studs per note 4; Facings: both sides 7/8" thickness of 1:2, 1:2 gypsum plaster	n/a	1 hr. 15min		1			1 1/4
W-3-Me-36	3-3/4"	Core: steel per note 4; Facings: 7/8" thickness of 1:2, 1:3 gypsum plaster on both sides.	n/a	1 hr.		1			1

TABLE 1.2.1

## NOTES

1. Failure mode - local temperature rise - back face.
2. 3/4" or 1" channel framing - hot-rolled or strip-steel channels.
3. Reinforcement is 4" square-mesh of No. 6 wire-welded at intersections (no channels).
4. Ratings are for any usual type of non-load-bearing metal framing providing 2"(or more) air space.

FIGURE 1.2.2

## WALLS - METAL FRAME

Thickness 4" To Less Than 6"

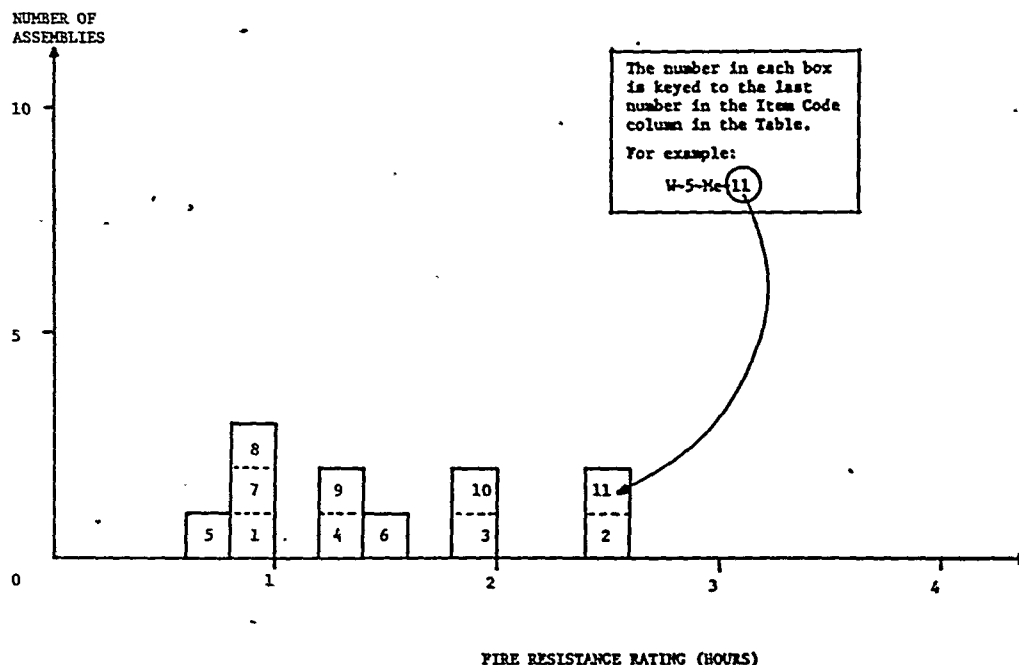


TABLE 1.2.2

## WALLS - METAL FRAME

Thickness 4" to Less Than 6"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-Me-1	5½"	3" cavity with 16 ga. channel studs (3½' O.C.) of ½" x ½" channel and 3" spacer. Metal lath on ribs with plaster (3 coats) ¾" over face of lath. Plaster (each side) - scratch coat - cement/lime/sand with hair; float coat - cement/lime/sand; finish coat - neat gypsum.	n/a	1 hr. 11min			7	1	1
W-4-Me-2	4"	Core: Steel studs per note 2; Facings: Both sides 1" thickness of neat gypsum plaster.	n/a	2½ hr.		1			2½
W-4-Me-3	4"	Core: Steel studs, note 2; Facings: both sides 1" thickness of 1:½, 1:½ gypsum plaster.	n/a	2 hr.		1			2
W-4-Me-4	4"	Core: Steel per note 2; Facings: Both sides 1" thickness of 1:2, 1:3 gypsum plaster.	n/a	1½ hr.		1			1½
W-4-Me-5	4½"	Core: Lightweight steel stud 3" in depth; Facings: Both sides ¾" thick sanded gypsum plaster, 1:2 scratch coat, 1:3 brown coat applied on metal lath.	See Note 4	45min		1		5	¾
W-4-Me-6	4½"	Core: lightweight steel studs 3" in depth; Facings: both sides ¾" thick neat gypsum plaster on metal lath.	See Note 4	1 hr. 30min		1		5	1½

## 1.2.2 (cont'd)

## Thickness 4" to Less Than 6"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-Me-7	4½"	Core: lightweight steel studs 3" in depth; Facings: both sides ¾" thick sanded gypsum plaster, 1:2 scratch and brown coats applied over metal lath.	See Note 4	1 hr.		1		5	1
W-4-Me-8	4-3/4"	Core: lightweight steel studs 3" in depth; Facings: both sides 7/8" thick sanded gypsum plaster, 1:2 scratch, 1:3 brown, applied over metal lath.	See Note 4	1 hr.		1		5	1
W-4-Me-9	4-3/4"	Core: lightweight steel studs 3" in depth; Facings: both sides 7/8" thick sanded gypsum plaster 1:2 scratch and brown coats applied on metal lath.	See Note 4	1 hr. 15 min.		1		5	1½
W-5-Me-10	5"	Core: lightweight steel studs 3" in depth; Facings: both sides 1" thick neat gypsum plaster on metal lath.	See Note 4	2 hr.		1		5	2
W-5-Me-11	5"	Core: lightweight steel studs 3" in depth; Facings: both sides 1" thick neat gypsum plaster on metal lath.	See Note 4	2 hr. 30 min.		1		5,6	2½

TABLE 1.2.2

## NOTES

1. Failure mode - local back face temperature rise.
2. Ratings are for any usual type of non-bearing metal framing providing a minimum 2" air space.
3. Facing materials secured to lightweight steel studs not less than 3" deep.
4. Rating based on loading to develop a maximum stress of 7270 PSI for net area of each stud.
5. Spacing of steel studs must be sufficient to develop adequate rigidity in the metal-lath or gypsum-plaster base.
6. As per note 4 but load/stud not to exceed 5120 PSI.

TABLE 1.2.3

## WALLS - METAL FRAME

Thickness - 6" to Less Than 8"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-6-Me-1	6-5/8"	On one side of 1" magnesium oxysulfate wood fiberboard sheathing attached to steel studs (see notes 1 and 2), 1" air space, and 3-3/4" brick secured with metal ties to steel frame every fifth course; Inside facing of 7/8" 1:2 sanded gypsum plaster on metal lath secured directly to studs; Plaster side exposed to fire.	See Note 2	1-3/4 hour		1		1	1-3/4
W-6-Me-2	6-5/8"	On one side, of 1" magnesium oxysulfate wood fiberboard sheathing attached to steel studs (see notes 1 and 2), 1" air space, and 3-3/4" brick secured with metal ties to steel frame every 5th course. Inside facing of 7/8" 1:2 sanded gypsum plaster on metal lath secured directly to studs; Brick face exposed to fire.	See Note 2	4 hr.		1		1	4
W-6-Me-3	6-5/8"	On one side of 1" magnesium oxysulfate wood fiberboard sheathing attached to steel studs (see notes 1 and 2), 1" air space, and 3-3/4" brick secured with metal ties to steel frame every 5th course. Inside facing of 7/8" vermiculite plaster on metal lath secured directly to studs. Plaster side exposed to fire.	See Note 2	2 hr.		1		1	2

TABLE 1.2.3

## NOTES

1. Lightweight steel studs (minimum 3" deep) used. Stud spacing dependent on loading, but in each case, spacing is to be such that adequate rigidity is provided to the metal lath plaster base.
2. Load is such that stress developed in studs is not greater than 5120 PSI calculated from net stud area.

TABLE 1.2.4

## WALLS - METAL FRAME

Thickness - 8" to Less Than 10"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-9-Me-1	9-1/16"	On one side of 1/4" wood fiberboard sheathing next to studs, 3/4" air space formed with 3/4" x 1-5/8" wood strips placed over the fiberboard and secured to the studs; paper backed wire lath nailed to strips 3-3/4" brick veneer held in place by filling a 3/4" space between the brick and paper backed lath with mortar. Inside facing of 3/4" neat gypsum plaster on metal lath attached to 5/16" plywood strips secured to edges of steel studs. Rated as combustible because of the sheathing. See notes 1 and 2. Plaster exposed.	See Note 2	1 1/2 hr.		1		1	1 1/2
W-9-Me-2	9-1/16"	Same as above with brick exposed.	See Note 2	4 hr.		1		1	4
W-8-Me-3	8 1/2"	On one side, of paper backed wire lath attached to studs and 3-3/4" brick veneer held in place by filling a 1" space between the brick and lath with mortar. Inside facing of 1" paper-enclosed mineral wool blanket weighing .6 lb/ft <sup>2</sup> attached to studs, metal lath or paper backed wire lath laid over the blanket and attached to the studs, and 3/4" sanded gypsum plaster 1:2 for the scratch and 1:3 for the brown coat. (See notes 1 and 2.) Plaster face exposed.	See Note 2	4 hr.		1		1	4
W-8-Me-4	8 1/2"	Same as above with brick exposed.	See Note 2	5 hr.		1		1	5

TABLE 1.2.4

## NOTES

1. Lightweight steel studs  $\geq 3"$  in depth. Stud spacing is dependent upon loading but in any case the spacing is to be such that adequate rigidity is provided to the metal-lath plaster base.
2. Load is such that the stress developed in the steel studs is  $\leq 5,120$  psi calculated from the net area of the stud.



TABLE 1.3.1  
WOOD FRAME WALLS  
Walls 0" to Less Than 4" Thick

FIGURE 1.3.2

## WOOD FRAME WALLS

Walls 4" To Less Than 6" Thick

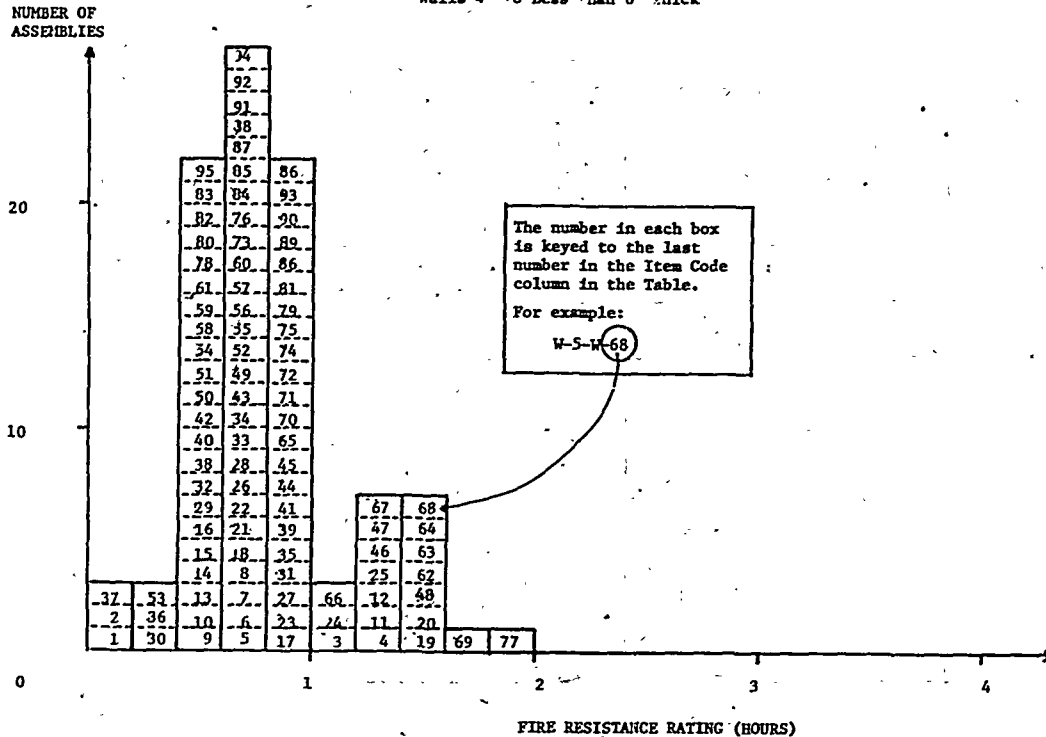


TABLE 1.3.2

## WOOD FRAME WALLS

Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-W-1	4"	2" x 4" Stud Wall; 3/16" CAB; No insulation Design A.	35min.	10min.			4	1-10	1/6
W-4-W-2	4-1/8"	2" x 4" Stud Wall; 3/16" CAB; No insulation Design A.	38min.	9 min.			4	1-10	1/6
W-4-W-3	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum board face; Design B.	62min.	64min.			4	1-10	1
W-5-W-4	5"	2" x 4" Stud Wall; 3/16" CAB face; 1/2" Gypsum board face; Design B.	79min.	—			4	1-10	1
W-4-W-5	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum board face; Design B.	45min.	45min.			4	1-12	3/4
W-5-W-6	5"	2" x 4" Stud Wall; 3/16" CAB face; 1/2" Gypsum face; Design B.	45min.	45min.			4	1-10 12-13	3/4
W-4-W-7	4"	2" x 4" Stud Wall; 3/16" CAB face; 3 1/2" Mineral Wool Insulation; Design C.	40min.	42min.			4	1-10	2/3
W-4-W-8	4"	2" x 4" Stud Wall; 3/16" CAB face; 3 1/2" Mineral Wool Insulation; Design C.	46min.	46min.			4	1-10	2/3
W-4-W-9	4"	2" x 4" Stud Wall; 3/16" CAB face; 3 1/2" Mineral Wool Insulation; Design C.	10min.	30min.			4	1-10 14	1/2

## 1.3.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-W-10	4-1/8"	2" x 4" Stud Wall; 3/16" CAB face; 3/4" Mineral Wool Insulation; Design C.	—	30min.			4	1-8 12,14	1/2
W-4-W-11	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum Strips over Studs; 5/4" Mineral Wool Insulation Design D.	79min.	79min.			4	1-10	1
W-4-W-12	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum Strips @ Stud Edges; 7 1/2" Mineral Wool Insul.; Design D.	82min.	82min.			4	1-10	1
W-4-W-13	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum board strips over studs; 5 1/2" Mineral Wool Ins. Design D.	30min.	30min.			4	1-12	1/2
W-4-W-14	4-3/4"	2" x 4" Stud Wall; 3/16" CAB face; 3/8" Gypsum board strips over studs; 7" Mineral Wool Ins.; Design D.	30min.	30min.			4	1-12	1/2
W-5-W-15	5 1/2"	2" x 4" Stud Wall; Exposed face - CAB Shingles over 1" x 6"; Unexposed face - 1/8" CAB Sheet; 7/16" fiberboard (Wood); Design E.	34min.	—			4	1-10	1/2
W-5-W-16	5 1/2"	2" x 4" Stud Wall; Exposed face - 1/8" CAB Sheet; 7/16 Fiberboard; Unexposed face - CAB Shingles over 1" x 6"; Design E.	32min.	33min.			4	1-10	1/2
W-5-W-17	5 1/2"	2" x 4" Stud Wall; Exposed face - CAB Shingles over 1" x 6"; Unexposed face - 1/8" CAB Sheet; Gypsum @ stud edges; 3 1/2" Mineral Wool Ins.; Design F.	51min.	—			4	1-10	3/4
W-5-W-18	5 1/2"	2" x 4" Stud Wall; Exposed face - 1/8" CAB Sheet; Gypsum board @ Stud Edges; Unexposed face - CAB Shingles over 1" x 6"; 3 1/2" Mineral Wool Insulation; Design F.	42min.	—			4	1-10	2/3
W-5-W-19	5-5/8"	2" x 4" Stud Wall; Exposed face - CAB Shingles over 1" x 6"; Unexposed face - 1/8" CAB Sheet, Gypsum board @ Stud edges; 5 1/2" Mineral Wool Insulation; Design G.	74min.	85min.			4	1-10	1
W-5-W-20	5-5/8"	2" x 4" Stud Wall; Unexposed face - CAB Shingles over 1"x6"; Exposed face - 1/8" CAB Sheet, Gypsum board @ 3/16" Stud edges; 7/16" Fiberboard; 5 1/2" Mineral Wool Insul.; Design G.	79min.	85min.			4	1-10	1 1/2
W-5-W-21	5-5/8"	2" x 4" Stud Wall; Exposed face - CAB Shingles 1"x 6" sheathing; Unexposed face - CAB Sheet, Gypsum board @ Stud edges; 5 1/2" Mineral Wool Insulation; Design G.	38min.	38min.			4	1-10 12,14	1/2
W-5-W-22	5-5/8"	2" x 4" Stud Wall; Exposed face- CAB Sheet, Gypsum board @ Stud edges; Unexposed face - CAB Shingles 1"x 6" sheathing; 5 1/2" Mineral Wood Insulation; Design G.	38min.	38min.			4	1-12	1/2
W-6-W-23	6"	2" x 4" Stud Wall; 16" O.C.; 1/2" Gypsum board each side; 1/2" gypsum plaster each side.	N/A	60min.			7	15	1
W-6-W-24	6"	2" x 4" Stud Wall; 16" O.C.; 1/2" Gypsum board each side; 1/2" Gypsum plaster each side.	N/A	68min.			7	16	1
W-6-W-25	6-7/8"	2" x 4" Stud Wall; 18" O.C.; 3/4" Gypsum plank each side; 3/16" Gypsum plaster each side.	N/A	80min.			7	15	1-1/3
W-5-W-26	5-1/8"	2" x 4" Stud Wall; 16" O.C.; 3/8" Gypsum board each side; 3/16" Gypsum plaster each side.	N/A	37min.			7	15	1/2
W-5-W-27	5-3/4"	2" x 4" Stud Wall; 16" O.C.; 3/8" Gypsum lath each side; 1/2" Gypsum plaster each side.	N/A	52min.			7	15	3/4
W-5-W-28	5"	2" x 4" Stud Wall; 16" O.C.; 1/2" Gypsum board each side.	N/A	37min.			7	16	1/2
W-5-W-29	5"	2" x 4" Stud Wall; 1/2" Fiberboard both sides 14Z M.C. with F.R. Paint @ 35 gm/ft <sup>2</sup> .	N/A	28min.			7	15	1/3
W-4-W-30	4-3/4"	2" x 4" Stud Wall; Fire Side - 1/2"(Wood) Fiberboard; Back face - 1/2" CAB; 16" O.C.	N/A	17min.			7	15,16	1/2

## 1.3.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-W-31	5-1/8"	2" x 4" Stud Wall; 16" O.C.; 1/2" Fiberboard Insulation with 1/32" Asbestos (both sides of each board).	N/A	50min.			7	16	3/4
W-4-W-32	4 1/2"	2"x4" Stud Wall; 3/8" thick gypsum wallboard on both faces; insulated cavities.	note 23	25min.		1		17,18,23	1/3
W-4-W-33	4 1/2"	2"x 4" Stud Wall; 1/2" thick gypsum wallboard on both faces.	note 17	40min.		1		17,23	2/3
W-4-W-34	4 1/2"	2"x 4" Stud Wall; 1/2" thick gypsum wallboard on both faces; insulated cavities.	note 17	45min.		1		17,18,23	3/4
W-4-W-35	4 1/2"	2"x 4" Stud Wall; 1/2" thick gypsum wallboard on both faces; insulated cavities.	N/A	1 hr.		1		17,18,24	1
W-4-W-36	4 1/2"	2"x 4" Stud Wall; 1/2" thick, 1.1lb/ft <sup>2</sup> wood fiberboard sheathing on both faces.	note 23	15min.		1		17,23	1/4
W-4-W-37	4 1/2"	2"x 4" Stud Wall; 1/2" thick, 0.7lb/ft <sup>2</sup> wood fiberboard sheathing on both faces.	note 23	10min.		1		17,23	1/6
W-4-W-38	4 1/2"	2"x 4" Stud Wall; 1/2", "flameproofed", 1.6lb/ft <sup>2</sup> wood fiberboard sheathing on both faces.	note 23	30min.		1		17,23	1/2
W-4-W-39	4 1/2"	2"x 4" Stud Wall; 1/2" thick gypsum wallboard on both faces; insulated cavities.	note 23	1 hr.		1		17,18,23	1
W-4-W-40	4 1/2"	2"x 4" Stud Wall; 1/2" thick, 1:2, 1:3 gypsum plaster on wood lath on both faces.	note 23	30min.		1		17,21,23	1/2
W-4-W-41	4 1/2"	2"x 4" Stud Wall; 1/2" thick, 1:2, 1:3 gypsum plaster on wood lath on both faces; insulated cavities.	note 23	1 hr.		1		17,18,21,23	1
W-4-W-42	4 1/2"	2"x 4" Stud Wall; 1/2" thick, 1:5, 1:7.5 lime plaster on wood lath on both wall faces.	note 23	30min.		1		17,21,23	1/2
W-4-W-43	4 1/2"	2"x 4" Stud Wall; 1/2" thick 1:5, 1:7.5 lime plaster on wood lath on both faces, insulated cavities.	note 23	45 min.		1		17,18,21,23	3/4
W-4-W-44	4-5/8"	2" x 4" stud wall; 3/16" thick cement-asbestos over 3/8" thick gypsum board on both faces.	note 23	1 hr.		1		25,26,23,27	1
W-4-W-45	4-5/8"	2"x 4" Stud Wall; studs faced with 4" wide strips of 3/8" thick gypsum board; 3/16" thick cement-asbestos board on both faces; insulated cavities.	note 23	1 hr.		1		23,25,28,27	1
W-4-W-46	4-5/8"	Same as W-4-W-45 but non-load bearing.	N/A	1 1/2 hr.		1		24,28	1 1/2
W-4-W-47	4-7/8"	2" x 4" Stud wall; 3/16 thick cement asbestos board over 1/2" thick gypsum sheathing on both faces.	note 23	1 1/2 hr.		1		23,25,27,26	1 1/2
W-4-W-48	4-7/8"	Same as W-4-W-47 but non-load bearing.	N/A	1 1/2 hr.		1		24,27	1 1/2
W-5-W-49	5"	2"x 4" Stud Wall; exterior face: 3/4" wood sheathing, asbestos felt 14 lb/100 ft <sup>2</sup> and 5/32" cement-asbestos shingles. Interior face: 4" wide strips of 3/8" gypsum board over studs; wall faced with 3/16" thick cement asbestos board.	note 23	40min.		1		18,23,25,26,29	2/3
W-5-W-50	5"	2"x 4" Stud Wall; exterior face as per W-5-W-49; Interior face: 9/16" composite board consisting of 7/16" thick wood fiber board faced with 1/8" thick cement asbestos board; Exterior side exposed to fire.	note 23	30 min.		1		23,25,26,30	1/2
W-5-W-51	5"	Same as W-5-W-50 but interior side exposed to fire.	note 23	30min.		1		23,25,26	1/2
W-5-W-52	5"	Same as W-5-W-49 but exterior side exposed to fire.	note 23	45min.		1		18,23,25,26	3/4
W-5-W-53	5"	2"x 4" Stud Wall; 3/4" thick T&G wood boards on both sides.	note 23	20min.		1		17,23	1/3

## 1.3.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rac Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-W-54	5"	Same as W-5-W-53 but with insulated cavities.	note 23	35min		1		17,18,23	1/2
W-5-W-55	5"	2"x 4" Stud Wall; 3/4" thick T&G wood boards on both sides with 30 lb/100 ft <sup>2</sup> asbestos, paper between studs and boards.	note 23	45min		1		17,23	3/4
W-5-W-56	5"	2"x 4" Stud Wall; 1/2" thick, 1:2, 1:3 gypsum plaster on metal lath on both sides of wall.	note 23	45min		1		17,21,23	3/4
W-5-W-57	5"	2"x 4" Stud Wall; 3/4" thick 2:1:8, 2:1:12 lime and Keene's cement plaster on metal lath, both sides of wall.	note 23	45min		1		17,21,23	3/4
W-5-W-58	5"	2"x 4" Stud Wall; 3/4" thick 2:1:8, 2:1:10 lime portland cement plaster over metal lath on both sides of wall.	note 23	30min		1		17,21,23	1/2
W-5-W-59	5"	2"x 4" Stud Wall, 3/4" Thick 1:5, 1:7,5 lime plaster on metal lath on both sides of wall.	note 23	30min		1		17,21,23	1/2
W-5-W-60	5"	2"x 4" Stud Wall, 3/4" thick, 1:1/30:2, 1:1/30:3 portland cement, asbestos fiber plaster on metal lath on both sides of wall.	note 23	45min		1		17,21,23	3/4
W-5-W-61	5"	2"x 4" Stud Wall, 3/4" thick 1:2, 1:3 portland cement plaster on metal lath on both sides of wall.	note 23	30min		1		17,21,23	1/2
W-5-W-62	5"	2"x 4" Stud Wall, 3/4" thick neat plaster on metal lath on both sides of wall.	N/A	1 hr. 30min.		1		17,22,24	1 1/2
W-5-W-63	5"	2"x 4" Stud Wall, 3/4" thick neat gypsum plaster on metal lath on both sides of wall.	note 23	1 hr. 30min.		1		17,21,23	1 1/2
W-5-W-64	5"	2"x 4" Stud Wall, 3/4" thick 1:2, 1:2 gypsum plaster on metal lath on both sides of wall, insulated cavities.	note 23	1 hr. 30min.		1		17,18,21,23	1 1/2
W-5-W-65	5"	2"x 4" Stud Wall, same as W-5-W-64 but wall cavities not insulated.	note 23	1 hr.		1		17,21,23	1
W-5-W-66	5"	2"x 4" Stud Wall, 3/4" thick 1:2, 1:3 gypsum plaster on metal lath on both sides of wall, insulated cavities.	note 23	1 hr. 15min.		1		17,18,21,23	1 1/2
W-5-W-67	5-1/16"	Same as W-5-W-49 except cavity insulation of 1-3/4 lb/ft <sup>2</sup> mineral wool bats. Rating applies when either wall side exposed to fire.	note 23	1 hr. 15min.		1		23,26,25	1 1/2
W-5-W-68	5 1/2"	2"x 4" stud wall, 7/8" thick 1:2, 1:3 gypsum plaster on metal lath on both sides of wall, insulated cavities.	note 23	1 hr. 30min		1		17,18,21,23	1 1/2
W-5-W-69	5 1/2"	2"x 4" Stud wall; 7/8" thick neat gypsum plaster applied on metal lath, on both sides of wall.	N/A	1 hr. 45min		1		17,22,24	1-3/4
W-5-W-70	5 1/2"	2"x 4" stud wall; 1/2" thick neat gypsum plaster on 3/8" plain gypsum lath, both sides of wall.	note 23	1 hr.		1		17,22,23	1
W-5-W-71	5 1/2"	2"x 4" stud wall; 1/2" thick, 1:2, 1:2 gypsum plaster on 3/8" thick plain gypsum lath with 1-3/4"x 1-3/4" metal lath pads nailed 8" O.C. vertically, 16" O.C. horizontally, both sides of wall.	note 23	1 hr.		1		17,21,23	1
W-5-W-72	5 1/2"	2"x 4" stud wall, 1/2" thick 1:2, 1:2 gypsum plaster on 3/8" perforated gypsum lath, one 3/4" diameter hole or larger per 16" sq. in. of lath surface, both sides of wall.	note 23	1 hr.		1		17,21,23	1
W-5-W-73	5 1/2"	2"x 4" stud wall, 1/2" thick 1:2, 1:2 gypsum plaster on 3/8" gypsum lath (plain, indented or perforated) both sides of wall.	note 23	45min		1		17,21,23	3/4

## 1.3.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-W-74	5½"	2"x 4" Stud Wall, 7/8" thick 1:2, 1:3 gypsum plaster over metal lath on both sides of wall.	note 23	1 hr.		1		17,21 23	1
W-5-W-75	5½"	2"x 4" Stud Wall, 7/8" thick 1:1/30:2, 1:1/30:3 portland cement, asbestos plaster applied over metal lath on both sides of wall.	note 23	1 hr.		1		17,21 23	1
W-5-W-76	5½"	2"x 4" Stud Wall, 7/8" thick 1:2, 1:3 portland cement plaster over metal lath on both sides of wall.	note 23	45min		1		17,21 23	3/4
W-5-W-77	5½"	2"x 4" Stud Wall, 1" thick neat gypsum plaster over metal lath on both sides of wall, non-load bearing.	N/A	2 hr.		1		17,22 24	2
W-5-W-78	5½"	2"x 4" Stud Wall, ½" thick, 1:2, 1:2 gypsum plaster on ½" thick, 0.7 lb/ft² wood fiberboard both sides of wall.	note 23	35min		1		17,21 23	½
W-4-W-79	4-3/4"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over wood lath on both sides of wall. Mineral wool insulation.	N/A	1 hr.			43	21,31 35,38	1
W-4-W-80	4-3/4"	Same as W-4-W-79 but uninsulated.	N/A	35min.			43	21,31 35	½
W-4-W-81	4-3/4"	2"x 4" wood stud wall. ½" thick, 3:1:8, 3:1:12 lime, Keene's cement, sand plaster over wood lath both sides of wall. Mineral wool insulation.	N/A	1 hr.			43	21,31 35, 40	1
W-4-W-82	4-3/4"	2"x 4" wood stud wall. ½" thick 1:6½, 1:6½ lime Keene's cement plaster over wood lath both sides of wall. Mineral wool insulation.	N/A	30min			43	21,31, 35,40	½
W-4-W-83	4-3/4"	2"x 4" wood stud wall. ½" thick, 1:5, 1:7.5 lime plaster over wood lath on both sides of wall.	N/A	30min.			43	21,31 35	½
W-5-W-84	5-1/8"	2"x 4" wood stud wall. 11/16" thick 1:5, 1:7.5 lime plaster over wood lath on both sides of wall. Mineral wool insulation.	N/A	45min.			43	21,31 35,39	½
W-5-W-85	5½"	2"x 4" wood stud wall. 3/4" thick 1:5, 1:7 lime plaster over wood lath on both sides of wall. Mineral wool insulation.	N/A	40min.			43	21,31 35,40	2/3
W-5-W-86	5½"	2"x 4" wood stud wall. ½" thick 2:1:12 lime, Keene's cement and sand scratch coat, ½" thick 2:1:18 lime, Keene's cement, sand and brown coat over wood lath on both sides of wall. Mineral wool insulation.	N/A	1 hr.			43	21,31, 35,40	1
W-5-W-87	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over 3/8" thick plaster board on both sides of wall.	N/A	45min.			43	21,31	3/4
W-5-W-88	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over 3/8" thick gypsum lath on both sides of wall.	N/A	45min.			43	21,31	3/4
W-5-W-89	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over 3/8" gypsum lath, on both sides of wall.	N/A	1 hr.			43	21,31 33	1
W-5-W-90	5½"	2"x 4" wood stud wall. ½" thick neat plaster over 3/8" thick gypsum lath, on both sides of wall.	N/A	1 hr.			43	21,22, 31	1
W-5-W-91	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over 3/8" thick indented gypsum lath, on both sides of wall.	N/A	45min			43	21,31	3/4
W-5-W-92	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over perforated gypsum lath, 3/8" thick on both wall faces.	N/A	45min			43	21,31 34	3/4
W-5-W-93	5½"	2"x 4" wood stud wall. ½" thick 1:2, 1:2 gypsum plaster over 3/8" thick perforated gypsum lath on both sides of wall.	N/A	1 hr.			43	21,31	1

## 1.3.2 (cont'd)

## Walls 4" to Less Than 6" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-5-W-94	5 $\frac{1}{2}$ "	2"x 4" wood stud wall. $\frac{1}{2}$ " thick 1:2, 1:2 gypsum plaster over perforated gypsum lath 3/8" thick over both sides of wall.	N/A	45min			43	21,31 34	3/4
W-5-W-95	5 $\frac{1}{2}$ "	2"x 4" wood stud wall. $\frac{1}{2}$ " thick 1:2, 1:2 gypsum plaster over $\frac{1}{2}$ " thick wood fiberboard plaster base on both sides of wall.	N/A	35min			43	21,31, 36	$\frac{1}{2}$
W-5-W-96	5-3/4"	2"x 4" wood stud wall. 1/2" thick 1:2, 1:2 gypsum plaster over 7/8" thick flameproofed wood fiberboard, on both sides of wall.	N/A	1 hr.			43	21,31 37	1

TABLE 1.3.2

## NOTES

1. All specimens 8' or 8'8" x 10'4" - i.e.,  $\frac{1}{2}$  of furnace size. See note 42 for design cross section.
2. Specimens tested in tandem (two per exposure).
3. Test per ASA No. A-2-1934 except where unloaded. Also, panels were of "half" size of furnace opening. Time value signifies a thermal failure time.
4. 2 x 4 Studs - 16" O.C.; where 10'4", blocking @ 2'4" height.
5. Facing 4' x 8' - cement asbestos board sheets - 3/16" thick.
6. Sheathing (diagonal)- 25/32" x 5 $\frac{1}{2}$ " - 1" x 6" pine.
7. Facing Shingles - 24" x 12" x 5/32" where used.
8. Asbestos felt - asphalt sat between sheathing and shingles.
9. Load - 30,500 lbs or 360 PSI/stud where load was tested.
10. Walls were tested beyond achievement of first test end point. A load bearing time in excess of performance time indicates that although thermal criteria were exceeded load bearing ability continued.
11. Wall was rated for 1 hr. combustible use in original source.
12. Hose stream specimen.
13. Rated 1 $\frac{1}{2}$  hour load bearing. Rated 1 $\frac{1}{2}$  hour none-load bearing.
14. Failed hose stream.
15. Test terminated due to flame penetration.
16. Test terminated - local back face temperature vise.
17. Nominal 2 x 4 wood studs of No. 1 common or better lumber set edge-wise. 2 x 4 plates at top and bottom and blocking at mid-height of wall.
18. Cavity insulation consists of rock wool bats 1.0 lb/ft<sup>2</sup> of filled cavity area.
19. Cavity insulation consists of glass-wool bats 0.6 lb/ft<sup>2</sup> of filled cavity area.
20. Cavity insulation consists of blown-in rock wool 2.0 lb/ft<sup>2</sup> of filled cavity area.
21. Mix proportions for plastered walls as follows: first ratio indicates scratch coat mix, weight of dry plaster: dry sand; second ratio indicates brown coat mix.
22. "Neat" plaster is taken to mean unsanded wood-fiber gypsum plaster.
23. Load = 360 psi of net stud cross-sectional area.
24. Rated as non load bearing.

## 1.3.2 (cont'd)

## NOTES

25. Nominal 2 x 4 studs per note 17, spaced at 16" on center.
26. Horizontal joints in facing material supported by 2 x 4 blocking within wall.
27. Facings secured with 6 d casing nails. Nail holes predrilled and were 0.02" - 0.03" smaller than nail diameter.
28. Cavity insulation consists of mineral wool bats weighing 2lb/ft<sup>2</sup> of filled cavity area.
29. Interior wall face exposed to fire.
30. Exterior wall face exposed to fire.
31. Nominal 2 x 4 studs of yellow pine or Douglas-fir spaced 16" on center in a single row.
32. Studs as in note 31 except double row, with studs in rows staggered.
33. Six roofing nails with metal-lath pads around heads to each 16"x 48" lath.
34. Areas of holes less than 2-3/4% of area of lath.
35. Wood laths were nailed with either 3 d or 4 d nails, one nail to each bearing, and the end joining broken every 7th course.
36. 1/2" thick fiberboard plaster base nailed with 3 d or 4 d common wire nails spaced 4" - 6" on center.
37. 7/8" thick fiberboard plaster base nailed with 5 d common wire nails spaced 4" - 6" on center.
38. Mineral wool bats 1.05-1.25 lb/ft<sup>2</sup> with waterproofed-paper backing.
39. Blown-in mineral wool insulation, 2.2 lb/ft<sup>2</sup>.
40. Mineral wool bats, 1.4 lb/ft<sup>2</sup> with waterproofed-paper backing.
41. Mineral wool bats, 0.9 lb/ft<sup>2</sup>.
42. See wall design diagram, below.

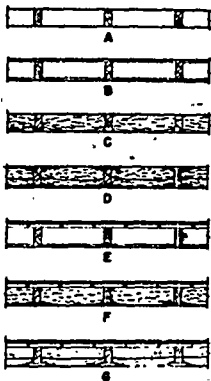




TABLE 1.3.3

## WOOD FRAMED WALLS

6" to Less Than 8" Thick

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Sec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-6-W-1	6½"	2 x 4 stud wall, ½" thick, 1:2, 1:2 gypsum plaster on 7/8" "Flame-proofed" wood fiberboard weighing 2.8 lb/ft² - both sides of wall.	note 3	1 hr		1		1-3	1
W-6-W-2	6½"	2 x 4 stud wall, ½" thick, 1:3, 1:3 gypsum plaster on 1" thick magnesium oxysulfate wood fiberboard - both sides of wall.	note 3	45min		1		1-3	3/4
W-7-W-3	7½"	Double row of 2 x 4 studs, ½" thick 1:2, 1:2 gypsum plaster applied over 3/8" thick perforated gypsum lath on both sides of wall. Mineral wool insulation.	n/a	1 hr			43	2,4,5	1
W-7-W-4	7½"	Double row of 2 x 4 studs, 5/8" thick 1:2, 1:2 gypsum plaster applied over 3/8" thick perforated gypsum lath over laid with 2" x 2", 16 gage wire fabric, on both sides of wall.	n/a	1 hr 15min			43	2,4	1½

TABLE 1.3.3

## NOTES

1. Nominal 2 x 4 wood studs of No. 1 common or better lumber set edge-wise. 2 x 4 plates at top and bottom and blocking at mid-height of wall.
2. Mix proportions for plastered walls as follows: first ratio indicates scratch coat mix, weight of dry plaster: dry sand; second ration indicates brown coat mix.
3. Load = 360 psi of net stud cross-sectional area.
4. Nominal 2 x 4 studs of yellow pine or Douglas-fir spaced 16" in a double row, with studs in rows staggered.
5. Mineral wool bats, 0.19 lb/ft².

TABLE 1.4.1

## WALLS - MISCELLANEOUS MATERIALS

Thickness - 0" to Less Than 4"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-3-MI-1	3-7/8"	Glass brick wall - (bricks 5-3/4"x 5-3/4"x 3-7/8") 1/2" mortar bed - cement/lime/sand; mounted in brick (9") wall with mastic and 1/2" asbestos rope.	n/a	1 hr.			7	1,2	1
W-3-MI-2	3"	Core: 2" magnesium oxysulfate wood-fiber blocks laid in portland cement-lime mortar; Facings on both sides; See note 3.	n/a	1 hr.		1		3	1
W-3-MI-3	3-7/8"	Core: 8" x 4-7/8" glass blocks 3-7/8" thick weighing 4 lbs. each. Laid in portland cement lime mortar, horizontal mortar joints reinforced with metal lath.	n/a	1 hr.		1			1/2

TABLE 1.4.1

## NOTES

1. No failure reached at 1 hour.
2. These glass blocks are assumed to be solid based on other test data available for similar but hollow units which show significantly reduced fire endurance.
3. Minimum of 1/2" of 1:3 sanded gypsum plaster required to develop this rating.

TABLE 1.4.2

## WALLS - MISCELLANEOUS MATERIALS

Thickness - 4" to Less Than 6"

Item Code	Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
W-4-MI-1	4"	Core: 3" magnesium oxysulfate wood-fiber blocks laid in portland cement mortar; Facings: both sides per note 1.	n/a	2 hr.		1			2

TABLE 1.4.2

## NOTES

1. 1/2" sanded gypsum plaster. Voids in hollow blocks to be not more than 30%.

FIGURE 1.5.1

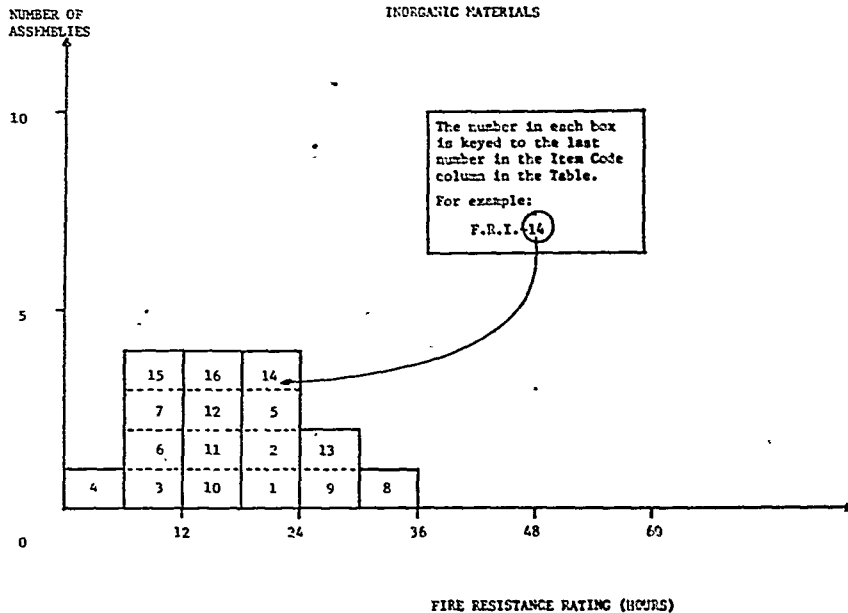
FINISH RATING  
INORGANIC MATERIALS

TABLE 1.5.1

## FINISH RATING

## INORGANIC MATERIALS

Item Code	Thickness	Construction Details	Performance	Reference Number			Rec. Y. R. Notes (min.)
			Finish Rating	Pre-87-92	87-92	Post-92	
F.R.-I-1	9/16"	3/8" gypsum wallboard faced with 3/16" cement asbestos board.	20 minutes		1		1, 2 15
F.R.-I-2	11/16"	1/2" gypsum sheathing faced with 3/16" cement asbestos board.	20 minutes		1		1, 2 20
F.R.-I-3	3/16"	3/16" cement asbestos board over uninsulated cavity.	10 minutes		1		1, 2 5
F.R.-I-4	3/16"	3/16" cement asbestos board over insulated cavity ties.	5 minutes		1		1, 2 5
F.R.-I-5	3/4"	3/4" thick 1:2, 1:3 gypsum plaster over paper backed metal lath.	20 minutes		1		1-3 20
F.R.-I-6	3/4"	3/4" thick portland cement plaster on metal lath.	10 minutes		1		1, 2 10
F.R.-I-7	3/4"	3/4" thick, 1:5, 1:7.5 lime plaster on metal lath.	10 minutes		1		1, 2 10
F.R.-I-8	1"	1" thick neat gypsum plaster on metal lath.	35 minutes		1		1, 2, 4 35
F.R.-I-9	3/4"	3/4" thick neat gypsum plaster on metal lath.	30 minutes		1		1, 2, 4 30
F.R.-I-10	3/4"	3/4" thick 1:2, 1:2 gypsum plaster on metal lath	15 minutes		1		1-3 15
F.R.-I-11	1/2"	Same as F.R.-I-7, except 1/2" thick on wood lath	15 minutes		1		1-3 15
F.R.-I-12	1/2"	1/2" thick, 1:2, 1:3 gypsum plaster on wood lath	15 minutes		1		1-3 15
F.R.-I-13	7/8"	1/2" thick, 1:2, 1:2 gypsum plaster on 3/8" perforated gypsum lath.	30 minutes		1		1-3 30
F.R.-I-14	7/8"	1/2" thick, 1:2, 1:2 gypsum plaster on 3/8" thick plain or indented gypsum plaster.	20 minutes		1		1-3 20
F.R.-I-15	3/8"	3/8" gypsum wallboard.	10 minutes		1		1, 2 10
F.R.-I-16	1/2"	1/2" gypsum wallboard.	15 minutes		1		1, 2 15

TABLE 1.5.1

## NOTES

1. The finish rating is the time required to obtain an average temperature rise of 250°F, or a single point rise of 325°F, at the interface between the material being rated and the substrate being protected.
2. Tested in accordance with the Standard Specifications for Fire Tests of Building Construction and Materials, ASA No. A2-1932.
3. Mix proportions for plaster as follows: first ratio, dry weight of plaster: dry weight of sand for scratch coat; second ratio, plaster: sand for brown coat.
4. Neat plaster means unsanded wood-fiber gypsum plaster.

TABLE 1.5.2

## FINISH RATING

## ORGANIC MATERIALS

Item Code	Thickness	Construction Details	Performance	Reference Number			Notes	Rec F.R. (min.)
			Finish Rating	Pre-BMS-92	BMS-92	Post-BMS-92		
FR-0-1	9/16"	7/16" wood fiber board faced with 1/8" cement asbestos board.	15 minutes		1		1, 2	15
FR-0-2	29/32"	3/4" wood sheathing, asbestos felt weighing 14 lb/100 ft <sup>2</sup> and 5/32" cement asbestos shingles.	20 minutes		1		1, 2	20
FR-0-3	1 1/2"	1" thick magnesium oxysulfate wood fiberboard faced with 1:3, 1:2 gypsum plaster, 1/2" thick.	20 minutes		1		1-3	20
FR-0-4	1/2"	1/2" thick wood fiberboard.	5 minutes		1		1, 2	5
FR-0-5	1/2"	1/2" thick flameproofed wood fiberboard.	10 minutes		1		1, 2	10
FR-0-6	1"	1/2" thick wood fiberboard faced with 1/2" thick 1:2, 1:2 gypsum plaster.	15 minutes		1		1-3	15
FR-0-7	1-3/8"	7/8" thick flameproofed wood fiberboard faced with 1/2" thick 1:2, 1:2 gypsum plaster.	30 minutes		1		1-3	30
FR-0-8	1-1/4"	1-1/4" thick plywood	30 minutes			35		30

TABLE 1.5.2

## NOTES

1. The finish rating is the time required to obtain an average temperature rise of 250°F, or a single point rise of 325°F, at the interface between the material being rated and the substrate being protected.
2. Tested in accordance with the Standard Specifications for Fire Tests of Building Construction and Materials, ASA No. A2-1932.
3. Plaster ratios as follows: first ratio is for scratch coat, weight of dry plaster: weight of dry sand; second ratio is for the brown coat.

## SECTION II

## COLUMNS

TABLE 2.1.1

## REINFORCED CONCRETE COLUMNS

Minimum Dimension - 0" to Less Than 6"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-6-RC-1	6"	6" x 6" Square Columns; Gravel Aggregate Concrete (4030 PSI); Reinforcement - Vertical 4-7/8" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	34.7 tons	62min			7	1,2	1
C-6-RC-2	6"	6" x 6" Square Columns; Gravel Aggregate Concrete (4200 PSI); Reinforcement - Vertical 4-1/2" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover - 1".	21 tons	69min			7	1,2	1

TABLE 2.1.1

## NOTES

1. Collapse
2. British Test.

FIGURE 2.1.2  
REINFORCED CONCRETE COLUMNS

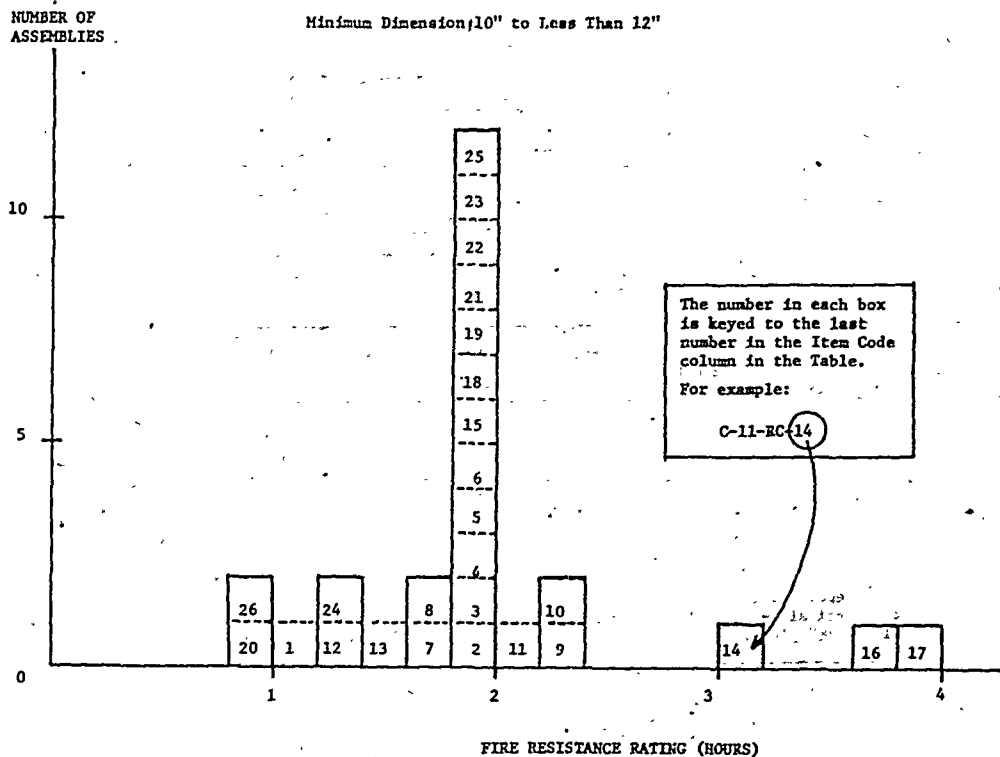


TABLE 2.1.2

## REINFORCED CONCRETE COLUMNS

Columns with Minimum Dimension 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-10-RC-1	10"	10" Square Columns; Aggregate concrete (4260 PSI); Reinforcement - Vertical 4- 1½" rebars; Horizontal - 3/8" Ties @ 6" pitch; Cover 1½".	92.2 tons	1 hr. 2min.			7	1	1
C-10-RC-2	10"	10" Square Columns; Aggregate concrete (2325 PSI); Reinforcement - Vertical 4- ½" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	46.7 tons	1 hr. 52min			7	1	1-3/4
C-10-RC-3	10"	10" Square Columns; Aggregate concrete (5370 PSI); Reinforcement - Vertical 4- ½" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	46.5 tons	2hr.			7	2,3 11	2
C-10-RC-4	10"	10" Square Columns; Aggregate concrete (5206 PSI); Reinforcement - Vertical 4- ½" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	46.5 tons	2 hr.			7	2,7	2
C-10-RC-5	10"	10" Square Columns; Aggregate concrete (5674 PSI); Reinforcement - Vertical 4- ½" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	46.7 tons	2 hr.			7	1	2
C-10-RC-6	10"	10" Square Columns; Aggregate concrete (5150 PSI); Reinforcement - Vertical 4- 1½" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	66 tons	1 hr. 43 min			7	1	1-3/4
C-10-RC-7	10"	10" Square Columns; Aggregate concrete (5580 PSI); Reinforcement - Vertical 4- ½" rebars;	62.5 tons	1 hr. 38min			7	1	1½

## 2.1.2 (cont'd)

Columns with Minimum Dimension 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-10-RC-7		Continued - Horizontal - 5/16" Ties @ 6" pitch; 1" Cover.							
C-10-RC-8	10"	10" Square Columns; Aggregate concrete (4080 PSI) Reinforcement - Vertical 4- 1-1/8" rebars; Horizontal - 5/16" Ties @ 6" pitch; 1-1/8" Cover	72.8 tons	1 hr. 48min.			7	1	1-3/4
C-10-RC-9	10"	10" Square Columns; Aggregate concrete (2510 PSI) Reinforcement - Vertical 4- 1/2" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	51 tons	2 hr. 16min			7	1	2 1/2
C-10-RC-10	10"	10" Square Columns; Aggregate concrete (2170 PSI) Reinforcement - Vertical 4- 1/2" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	45 tons	2 hr. 14min			7	12	2 1/2
C-10-RC-11	10"	10" Square Columns; Gravel aggregate concrete (4015 PSI); Reinforcement - Vertical 4- 1/2" rebars; Horizontal - 5/16" Ties @ 6" pitch; Cover 1".	46.5 tons	2 hr. 6 min			7	1	2
C-11-RC-12	11"	11" Square Columns; Gravel aggregate concrete (4150 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	61 tons	1 hr. 23min			7	1	1 1/2
C-11-RC-13	11"	11" Square Columns; Gravel aggregate concrete (4380 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	61 tons	1 hr. 26min			7	1	1 1/2
C-11-RC-14	11"	11" Square Columns; Gravel aggregate concrete (4140 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Steel mesh around reinforcement; Cover 1 1/2".	61 tons	3 hr. 9 min.			7	1	3
C-11-RC-15	11"	11" Square Columns; Slag aggregate concrete (3690 PSI); Reinforcement: Vertical 4- 1 1/4" rebar; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	91	2 hr.			7	2-5	2
C-11-RC-16	11"	11" Square Columns; Limestone aggregate concrete (5230 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	91.5 tons	3 hr. 41min			7	1	3 1/2
C-11-RC-17	11"	11" Square Columns; Limestone aggregate concrete (5530 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	91.5 tons	3 hr. 47min			7	1	3 1/2
C-11-RC-18	11"	11" Square Columns; Limestone aggregate concrete (5280 PSI); Reinforcement: Vertical 4- 1 1/4" rebars; Horizontal 3/8" Ties @ 7 1/2" pitch; Cover 1 1/2".	91.5 tons	2 hr.			7	2-4, 6	2
C-11-RC-19	11"	11" Square Columns; Limestone aggregate concrete (4180 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" Ties @ 7" pitch; Cover 1 1/2".	71.4 tons	2 hr.			7	2, 7	2

## 2.1.2 (cont'd)

Columns with Minimum Dimension 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-11-RC-20	11"	11" Square Columns; Gravel Concrete (4530 PSI) Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" Ties @ 7" pitch; Cover 1 1/4" with 1/2" plaster.	58.8	2 hrs.			7	2,3,9,	1 1/2
C-11-RC-21	11"	11" Square Columns; Gravel concrete (3520 PSI) Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" Ties @ 7" pitch; Cover 1 1/4".	variable	1 hr. 24min			7	1,8	2
C-11-RC-22	11"	11" Square Columns; Aggregate concrete (3710 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" Ties @ 7" pitch; Cover 1 1/4".	58.8 tons	2 hr.			7	2,3 10	2
C-11-RC-23	11"	11" Square Columns; Aggregate concrete (3790 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" Ties @ 7" pitch; Cover 1 1/4".	58.8 tons	2 hr.			7	2,3 10	2
C-11-RC-24	11"	11" Square Columns; Aggregate concrete (4860 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" ties @ 7" pitch; Cover 1 1/4".	86.1 tons	1 hr. 20min			7	1	1-1/3
C-11-RC-25	11"	11" Square Columns; Aggregate concrete (4850 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 3/8" ties @ 7" pitch; Cover 1 1/4".	58.8 tons	1 hr. 59min			7	1	1-3/4
C-11-RC-26	11"	11" Square Columns; Aggregate concrete (3834 PSI); Reinforcement: Vertical 4- 5/8" rebars; Horizontal 5/16" ties @ 4 1/2" pitch; Cover 1 1/4".	71.4 tons	53min			7	1	3/4

TABLE 2.1.2

## NOTES

1. Failure mode - collapse.
2. Passed two hour fire exposure.
3. Passed hose stream test.
4. Reloaded effectively after 48 hours but collapsed at load in excess of original test load.
5. Failing load was 150 tons.
6. Failing load was 112 tons.
7. Failed during hose stream test.
8. Range of load 58.8 tons (initial) to 92 tons (92 min.) to 60 tons (80 min.).
9. Collapsed at 44 tons in reload after 96 hours.
10. Withstood reload after 72 hours.
11. Collapsed on reload after 48 hours.



TABLE 2.1.3

## REINFORCED CONCRETE COLUMNS

Minimum Dimension 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-RC-1	12"	12" Square Columns; Gravel Aggregate Concrete (2647 PSI); Reinforcement: Vertical 4-5/8" rebars; Horizontal 5/16" ties @ 4 1/2 pitch; Cover 2".	78.2 tons	38 min		1	7	1	1 1/4
C-12-RC-2	12"	Reinforced Columns with 1 1/2" concrete outside of reinforced steel; gross diameter or side of column: 12"; Group I, Column A.	--	6 hrs.		1		2,3	6
C-12-RC-3	12"	Description as per C-12-RC-2; Group I, Column B.	--	4 hrs.		1		2,3	4
C-12-RC-4	12"	Description as per C-12-RC-2; Group II, Column A.	--	4 hrs.		1		2,3	4
C-12-RC-5	12"	Description as per C-12-RC-2; Group II, Column B.	--	2 hrs. 30 min		1		2,3	2 1/4
C-12-RC-6	12"	Description as per C-12-RC-2; Group III, Column A.	--	5 hrs.		1		2,3	3
C-12-RC-7	12"	Description as per C-12-RC-2; Group III, Column B.	--	2 hrs.		1		2,3	2
C-12-RC-8	12"	Description as per C-12-RC-2; Group IV, Column A.	--	2 hrs		1		2,3	2
C-12-RC-9	12"	Description as per C-12-RC-2; Group IV, Column B.	--	1 hr. 30 min		1		2,3	1 1/4

TABLE 2.1.3

## NOTES

1. Failure mode - unspecified structural.
2. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.  
 Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.  
 Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.  
 Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.
3. Groupings of aggregates and ties are the same as for structural steel columns protected solidly with concrete, the ties to be placed over the vertical reinforcing bars and the mesh, where required, to be placed within 1 in. from the surface of the column.  
 Column A - working loads are assumed as carried by the area of the column inside of the lines circumscribing the reinforcing steel.  
 Column B - working loads are assumed as carried by the gross area of the column.

TABLE 2.1.4

## REINFORCED CONCRETE COLUMNS

Minimum Dimension 14" to Less Than 16"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-14-RC-1	14"	14" Square Columns; Gravel aggregate concrete (4295 PSI); Reinforcement: Vertical 4- 3/4" rebars; Horizontal 1/2" ties @ 9" pitch; Cover 1 1/2".	86 TONS	1 hr. 22 min			7	1	1 1/2"
C-14-RC-2	14"	Reinforced concrete columns with 1 1/2" concrete outside reinforcing steel; gross diameter or side of column 14"; Group I; Column A.	—	7 hrs		1		2,3	7
C-14-RC-3	14"	Description as per item C-14-RC-2; Group II, Column B.	—	5 hrs		1		2,3	5
C-14-RC-4	14"	Description as per item C-14-RC-2; Group III; Column A.	—	5 hrs		1		2,3	5
C-14-RC-5	14"	Description as per item C-14-RC-2; Group IV; Column B.	—	3 hrs 30 min		1		2,3	3 1/2
C-14-RC-6	14"	Description as per item C-14-RC-2; Group III, Column A.	—	4 hrs		1		2,3	4
C-14-RC-7	14"	Description as per item C-14-RC-2; Group III, Column B.	—	2 hrs 30 min		1		2,3	2 1/2
C-14-RC-8	14"	Description as per item C-14-RC-2; Group IV, Column A.	—	2 hrs 30 min		1		2,3	2 1/2
C-14-RC-9	14"	Description as per item C-14-RC-2; Group IV; Column B.	—	1 hr 30 min		1		2,3	1 1/2

TABLE 2.1.4

## NOTES

- Failure mode - main rebars buckled between links at various points.
- Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.  
Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.  
Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.  
Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.
- Groupings of aggregates and ties are the same as for structural steel columns protected solidly with concrete, the ties to be placed over the vertical reinforcing bars and the mesh, where required, to be placed within 1 in. from the surface of the column.  
Column A - working loads are assumed as carried by the area of the column inside of the lines circumscribing the reinforcing steel.  
Column B - working loads are assumed as carried by the gross area of the column.

FIGURE 2.1.5

## REINFORCED CONCRETE COLUMNS

Minimum Dimension 16" to Less Than 18"

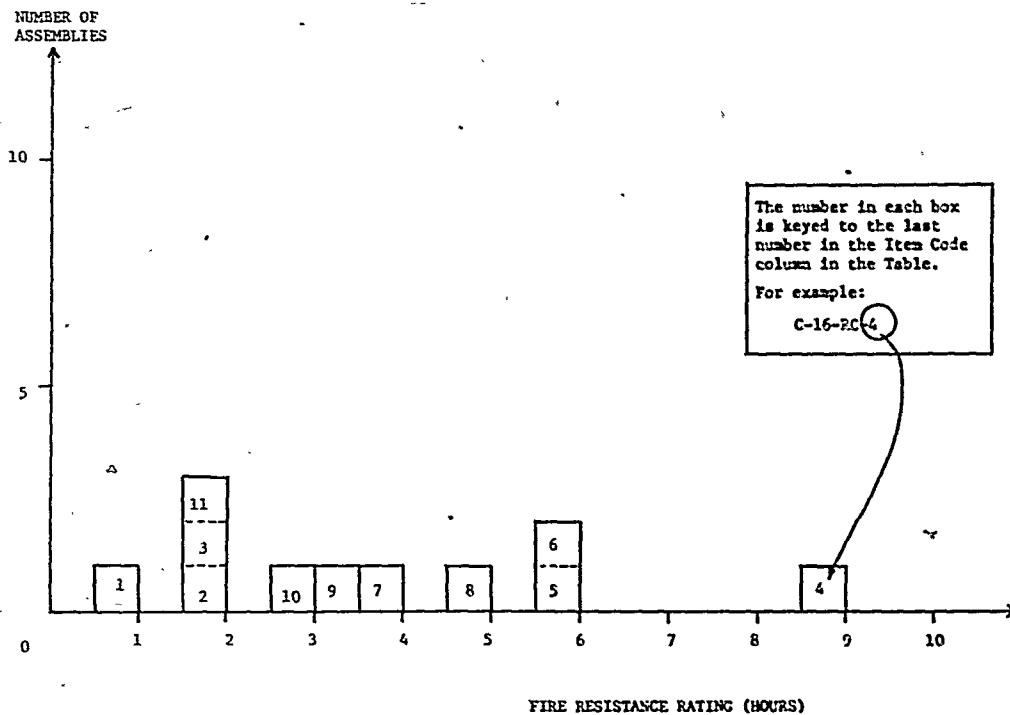


TABLE 2.1.5

## REINFORCED CONCRETE COLUMNS

Minimum Dimension 16" to Less Than 18"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMG-92	BMG-92	Post-BMG-92		
C-16-RC-1	16"	16" Square Columns; Gravel aggregate concrete (4550 PSI); Reinforcement: Vertical 8- 1-3/8" rebars; Horizontal 5/16" ties @ 6" pitch 1-3/8" below column surface and 5/16" ties at 6" pitch linking center rebars of each face forming a smaller square in column cross section.	237 tons	1 hr.			7	1-3	1
C-16-RC-2	16"	16" Square Columns; Gravel aggregate concrete (3360 PSI); Reinforcement: Vertical 8- 1-3/8" rebars; Horizontal 5/16" ties at 6" pitch; Cover 1-3/8"	210	2 hr.			7	2,4-6	2
C-16-RC-3	16"	16" Square Columns; Gravel aggregate concrete (3980 PSI); Reinforcement: Vertical 4- 7/8" rebars; Horizontal 3/8" ties @ 6" pitch; Cover 1"	123.5 tons	2 hr.			7	2,4,7	2
C-16-RC-4	16"	Reinforced concrete column with 1 1/2" concrete outside reinforcing steel; gross diameter or side of column: 16"; Group I, Column A.	--	9 hrs		1		8,9	9
C-16-RC-5	16"	Description as per C-16-RC-4; Group I, Column B	--	6 hrs		1		8,9	6
C-16-RC-6	16"	Description as per C-16-RC-4; Group II, Column A.	--	6 hrs		1		8,9	6

## 2.1.5 (cont'd)

Minimum Dimension 16" to Less Than 18"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-16-RC-7	16"	Description as per C-16-RC-4; Group II; Column B.	--	4 hrs		1		8,9	4
C-16-RC-8	16"	Description as per C-16-RC-4; Group III, Column A.	--	5 hrs.		1		8,9	5
C-16-RC-9	16"	Description as per C-16-RC-4; Group III, Column B.	--	3 hrs. 30min.		1		8,9	3½
C-16-RC-10	16"	Description as per C-16-RC-4; Group IV, Column A.	--	3 hrs.		1		8,9	3
C-16-RC-11	16"	Description as per C-16-RC-4; Group IV, Column B.	--	2 hrs.		1		8,9	2

TABLE 2.1.5

## NOTES

1. Column passed 1 hour fire test.
2. Column passed hose stream test.
3. No reload specified.
4. Column passed 2 hour fire test.
5. Column reloaded successfully after 24 hours.
6. Reinforcing details same as C-16-RC-1.
7. Column passed reload after 72 hours.
8. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.  
 Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.  
 Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.  
 Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.
9. Groupings of aggregates and ties are the same as for structural steel columns protected solidly with concrete, the ties to be placed over the vertical reinforcing bars and the mesh, where required, to be placed within 1 in. from the surface of the column.  
 Column A - working loads are assumed as carried by the area of the column inside of the lines circumscribing the reinforcing steel.  
 Column B - working loads are assumed as carried by the gross area of the column.

TABLE 2.1.6

## COLUMNS - REINFORCED CONCRETE

Minimum Dimension 18" to Less Than 20"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-18-RC-1	18"	Reinforced Concrete Column with 1½" concrete outside reinforced steel; gross diameter or side of column: 18"; Group I, Column A.	—	11 hrs		1		1,2	11
C-18-RC-2	18"	Description as per C-18-RC-1; Group I, Column B.	—	8 hrs.		1		1,2	8
C-18-RC-3	18"	Description as per C-18-RC-1; Group II, Column A.	—	7 hrs		1		1,2	7
C-18-RC-4	18"	Description as per C-18-RC-1; Group II, Column B.	—	5 hrs		1		1,2	5
C-18-RC-5	18"	Description as per C-18-RC-1; Group III, Column A.	—	6 hrs		1		1,2	6
C-18-RC-6	18"	Description as per C-18-RC-1; Group III, Column B.	—	4 hrs		1		1,2	4
C-18-RC-7	18"	Description as per C-18-RC-1; Group IV, Column A.	—	3 hrs 30min		1		1,2	3½
C-18-RC-8	18"	Description as per C-18-RC-1; Group IV, Column B.	—	2 hrs 30min		1		1,2	2½

TABLE 2.1.6

## NOTES

- Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
  - Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
  - Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
  - Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.
2. Groupings of aggregates and ties are the same as for structural steel columns protected solidly with concrete, the ties to be placed over the vertical reinforcing bars and the mesh, where required, to be placed within 1 in. from the surface of the column.
- Column A - working loads are assumed as carried by the area of the column inside of the lines circumscribing the reinforcing steel.
- Column B - working loads are assumed as carried by the gross area of the column.

FIGURE 2.1.7

## REINFORCED CONCRETE COLUMN

Minimum Dimension 20" to Less Than 22"

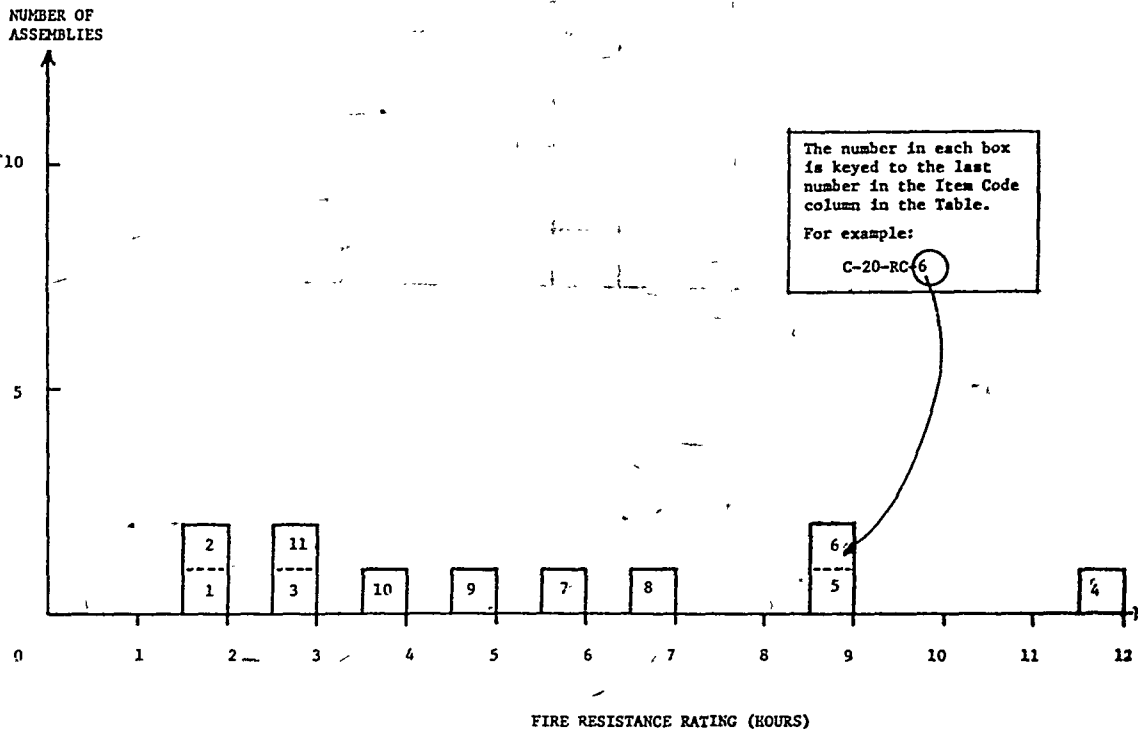


TABLE 2.1.7

## REINFORCED CONCRETE COLUMNS

Minimum Dimension 20" to Less Than 22"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-20-RC-1	20"	20" Square Columns; Gravel aggregate concrete (6690 PSI); Reinforcement: Vertical 4- 1-3/4" rebars; Horizontal 3/8" wire @ 6" pitch; Cover 1-3/4"	367 tons	2 hr.			7	1-3	2 *
C-20-RC-2	20"	20" Square Columns; Gravel aggregate concrete (4330 PSI); Reinforcement: Vertical 4- 1-3/4" rebars; Horizontal 3/8" Ties @ 6" pitch; Cover 1-3/4"	327 tons	2 hr.			7	1,2,4	2
C-20-RC-3	20 1/2"	20 1/2" Square Columns; Gravel aggregate concrete (4230 PSI); Reinforcement: Vertical 4- 1-1/8" rebar; Horizontal 3/8" wire @ 5" pitch; Cover 1-1/8"	199 tons	2 hr. 56 min.			7	5	2-3/4
C-20-RC-4	20"	Reinforced Concrete Columns with 1 1/2" concrete outside of reinforcing steel; gross diameter or side of column: 20"; Group I, Column A.	--	12 hr		1		6,7	12
C-20-RC-5	20"	Description as per C-20-RC-4; Group I, Column B.	--	9 hrs		1		6,7	9
C-20-RC-6	20"	Description as per C-20-RC-4; Group II, Column A.	--	9 hrs		1		6,7	9
C-20-RC-7	20"	Description as per C-20-RC-4; Group II, Column B.	--	6 hrs		1		6,7	6

## 2.1.7 (cont'd)

Minimum Dimension 20" to Less Than 22"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-20-RC-8	20"	Description as per C-20-RC-4; Group III, Column A.	—	7 hrs.		1		6,7	7
C-20-RC-9	20"	Description as per C-20-RC-4; Group III, Column B.	—	5 hrs.		1		6,7	5
C-20-RC-10	20"	Description as per C-20-RC-4; Group IV, Column A.	—	4 hrs.		1		6,7	4
C-20-RC-11	20"	Description as per C-20-RC-4; Group IV, Column B.	—	3 hrs.		1		6,7	3

TABLE 2.1.7

## NOTES

1. Passed 2 hr. fire test.
2. Passed hose stream test.
3. Failed during reload at 300 tons.
4. Passed reload after 72 hours.
5. Failure mode - collapse.
6. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
- Group II - includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
- Group III - includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
- Group IV - includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel-wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.
7. Groupings of aggregates and ties are the same as for structural steel columns protected solidly with concrete, the ties to be placed over the vertical reinforcing bars and the mesh, where required, to be placed within 1 in. from the surface of the column.
- Column A - working loads are assumed as carried by the area of the column inside of the lines circumscribing the reinforcing steel.
- Column B - working loads are assumed as carried by the gross area of the column.

TABLE 2.1.8

## HEXAGONAL REINFORCED CONCRETE COLUMNS

Diameter - 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-HRC-1	12"	12" Hexagonal Columns; Gravel aggregate concrete (4420 PSI); Vertical Reinforcement 8 $\frac{1}{4}$ " rebar; Horizontal Reinforcement - helical 5/16" winding on 1 $\frac{1}{4}$ " pitch; cover 1/2"	88 tons	58 min			7	1	3/4
C-12-HRC-2	12"	12" Hexagonal Columns; Gravel aggregate concrete (3460 PSI); Vertical Reinforcement 8- $\frac{1}{2}$ " rebar; Horizontal Reinforcement 5/16" helical winding @ 1 $\frac{1}{4}$ " pitch; Cover $\frac{1}{2}$ "	78.7 tons	1 hr.			7	2	1

TABLE 2.1.8

## NOTES

1. Failure Mode - collapse.
2. Test stopped at 1 hour.

TABLE 2.1.9

## HEXAGONAL REINFORCED CONCRETE COLUMNS

Diameter - 14" to Less Than 16"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-14-HRC-1	14"	14" Hexagonal Columns; Gravel aggregate concrete (4970 PSI); Vertical Reinforcement 8- $\frac{1}{2}$ " rebar; Horizontal 5/16" helical winding on 2" pitch; Cover $\frac{1}{2}$ "	90 tons	2 hr.			7	1-3	2

TABLE 2.1.9

## NOTES

1. Withstood 2 hour fire test.
2. Withstood hose stream test.
3. Withstood reload after 48 hours.



TABLE 2.1.10  
HEXAGONAL REINFORCED CONCRETE COLUMNS  
Diameter - 16" to Less Than 18"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre- EWS-92	EWS-92	Post- EWS-92		
C-16-HRC-1	16"	16" Hexagonal Columns; Gravel concrete (6320 PSI); Vertical Reinforcement 8- 5/8" rebar; Horizontal Reinforcement 5/16" helical winding on 3/4" pitch; Cover 1/2".	140 tons	1 hr. 55 min			7	1	1-3/4
C-16-HRC-2	16"	16" Hexagonal Columns; Gravel aggregate concrete (5580 PSI); Vertical Reinforcement 8- 5/8" rebar; Horizontal Reinforcement 5/16" helical winding on 1-3/4" pitch; Cover 1/2".	124 tons	2 hr.			7	2	2

TABLE 2.1.10  
NOTES

1. Failure Mode - Collapse.
2. Failed on furnace removal.

TABLE 2.1.11  
HEXAGONAL REINFORCED CONCRETE COLUMNS  
Diameter - 20" to Less Than 22"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre- EWS-92	EWS-92	Post- EWS-92		
C-20-HRC-1	20"	20" Hexagonal Columns; Gravel Concrete (680 PSI); Vertical Reinforcement: 3/4" rebar; Horizontal Reinforcement: 5/16" helical winding on 1-3/4" pitch; Cover 1/2".	211 tons	2 hr.			7	1	2
C-20-HRC-2	20"	20" Hexagonal Columns; Gravel Concrete (5680 PSI); Vertical Reinforcement: 3/4" rebar; Horizontal Reinforcement: 5/16" wire on 1-3/4" pitch; Cover 1/2".	184 tons	2 hr. 15 min			7	2,3,4	2 1/2

TABLE 2.1.11  
NOTES

1. Column collapsed on furnace removal.
2. Passed 2 1/2 hr. fire test.
3. Passed hose stream test.
4. Withstood reload after 48 hours.

TABLE 2.2  
ROUND CAST IRON COLUMNS

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-7-CI-1	7" O.D.	Column: .6" min. thickness metal, unprotected.	--	30min		1			1/2
C-7-CI-2	7" O.D.	Column: .6" min. metal thickness concrete filled, outside unprotected.	--	45min		1			3/4
C-11-CI-3	11" O.D.	Column: .6" minimum metal thickness; Protection: 1 1/2" portland cement plaster on high ribbed metal lath, 1/2" broken air space.	--	3 hrs.		1			3
C-11-CI-4	11" O.D.	Column: .6" min. metal thickness; Protection: 2" concrete other than siliceous aggregate.	--	2 hrs. 30 min		1			2-1/2
C-12-CI-5	12.5" O.D.	Column: 7" O.D. .6" min. metal thickness; Protection: 2" porous hollow tile, 3/4" mortar between tile and column, outside wire ties.	--	3 hrs.		1			3
C-7-CI-6	7.6" O.D.	Column: 7" I.D., 3/10" min. thickness metal, concrete filled unprotected.	--	30min		1			1/2
C-8-CI-7	8.6" O.D.	Column: 8" I.D., 3/10" min. thickness metal, concrete filled reinforced with 4- 3 1/4"x 3/8" angles, in fill; unprotected outside.	--	1 hr.		1			1

NUMBER OF  
ASSEMBLIES

FIGURE 2.3

STEEL COLUMNS - GYPSUM ENCASEMENTS

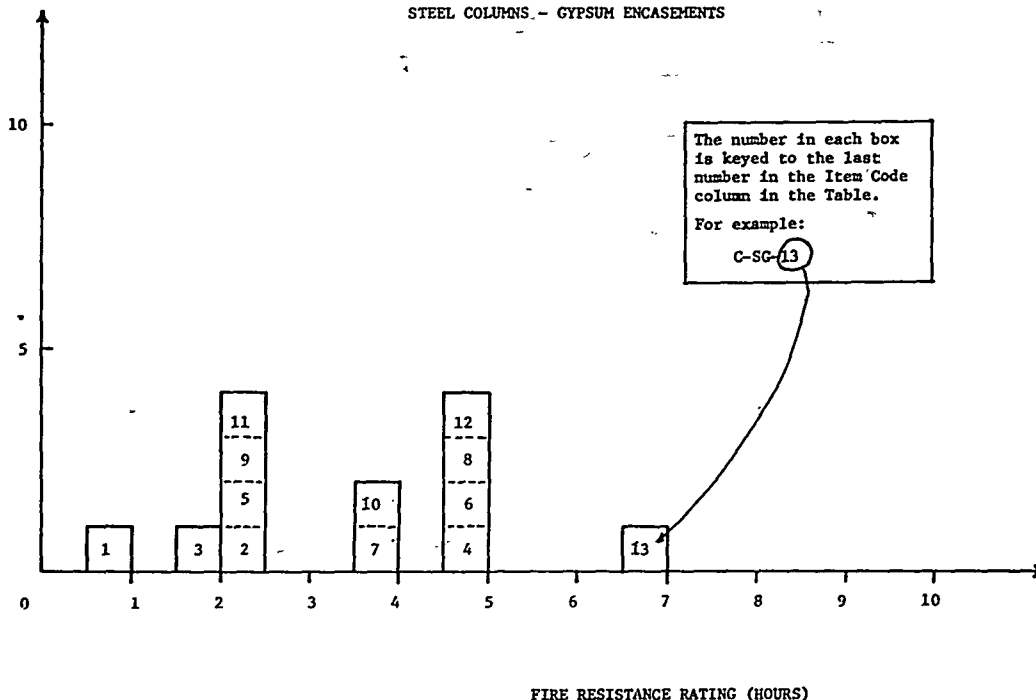


TABLE 2.3

## STEEL COLUMNS - GYPSUM ENCASEMENTS

Item Code	Minimum Area of Solid Material	Construction Details	Performance		Reference Number			Notes	Rec. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-SG-1	—	Steel protected with 3/4" 1:3 sanded gypsum or 1" 1:2½ portland cement plaster on wire or lath; one layer.	—	1 hr.		1			1
C-SG-2	—	Same as C-SG-1; two layers.	—	2 hrs 30 min		1			2-1/2
C-SG-3	130 in. <sup>2</sup>	2" solid blocks with wire mesh in horizontal joints, 1" mortar on flange, reentrant space filled with block and mortar.	—	2 hrs		1			2
C-SG-4	150 in. <sup>2</sup>	Same as C-130-SG-3 with ½" sanded gypsum plaster.	—	5 hrs		1			5
C-SG-5	130 in. <sup>2</sup>	2" solid blocks with wire mesh in horizontal joints, 1" mortar on flange, reentrant space filled with gypsum concrete.	—	2 hrs 30 min		1			2-1/2
C-SG-6	150 in. <sup>2</sup>	Same as C-130-SG-5 with ½" sanded gypsum plaster.	—	5 hrs		1			5
C-SG-7	300 in. <sup>2</sup>	4" solid blocks with wire mesh in horizontal joints, 1" mortar on flange reentrant space filled with block and mortar.	—	4 hrs		1			4
C-SG-8	300 in. <sup>2</sup>	Same as C-300-SG-7 with reentrant space filled with gypsum concrete.	—	5 hrs		1			5
C-SG-9	85 in. <sup>2</sup>	2" solid blocks with cramps at horizontal joints, mortar on flange only at horizontal joints, reentrant space not filled.	—	2 hrs 30 min		1			2-1/2
C-SG-10	105 in. <sup>2</sup>	Same as C-85-SG-9 with ½" sanded gypsum plaster.	—	4 hrs.		1			4
C-SG-11	95 in. <sup>2</sup>	3" hollow blocks with cramps at horizontal joints, mortar on flange only at horizontal joints, reentrant space not filled.	—	2 hrs. 30 min		1			2-1/2
C-SG-12	120 in. <sup>2</sup>	Same as C-95-SG-11 with ½" sanded gypsum plaster.	—	5 hrs.		1			5
C-SG-13	130 in. <sup>2</sup>	2" neat fibered gypsum reentrant space filled poured solid and reinforced with 4"x 4" wire mesh ½" sanded gypsum plaster.	—	7 hrs.		1			7

TABLE 2.4

## TIMBER COLUMNS

Minimum Dimension - 11"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-11-TC-1	11"	With unprotected steel plate cap	—	30 min		1		1,2	¼
C-11-TC-2	11"	With unprotected cast iron cap and pintle	—	45 min		1		1,2	¾
C-11-TC-3	11"	With concrete or protected steel or cast iron cap.	—	1 hr. 15 min		1		1,2	1½
C-11-TC-4	11"	With 3/8" gypsum wallboard over column and over cast iron or steel cap.	—	1 hr. 15 min		1		1,2	1½
C-11-TC-5	11"	With 1" portland cement plaster on wire lath over column and over cast iron or steel cap; 3/4" air space.	—	2 hrs		1		1,2	2

TABLE 2.4

## NOTES

1. Minimum Area: 120 in.<sup>2</sup>
2. Type of wood: Long leaf pine or douglas fir.

TABLE 2.5.1.1

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension Less Than 6"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-5-SC-1	5"	5" x 6" Outer dimensions; 4" x 3" x 10 lbs. - H Beam; Protection - Gravel Concrete (4900 PSI) 6" x 4" - 13 SWG mesh.	12 tons	1 hr. 29min			7	1	1 1/4

TABLE 2.5.1.1

## NOTES

1. Failure mode - collapse.

TABLE 2.5.1.2

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension 6" to Less Than 8"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-7-SC-1	7"	7" x 8" Column; 4" x 3" x 10" H Beam; Protection - Brick filled concrete (6220 PSI); 6" x 4" mesh - 13 S.W.G.; mesh 1" below column surface.	12 tons	2 hrs. 46 min			7	1	3
C-7-SC-2	7"	7" x 8" Column; 4" x 3" x 10 lbs. H Beam; Protection: Gravel concrete (5140 PSI) 6" x 4" 13 S.W.G. mesh 1" below surface.	12 tons	3 hrs. 1 min.			7	1	2-3/4
C-7-SC-3	7"	7" x 8" Column; 4" x 3" x 10 lbs. H Beam; Protection: Concrete (4540 PSI) 6" x 4" - 13 SWG mesh; 1" below column surface.	12 tons	3 hr. 9 min.			7	1	3
C-7-SC-4	7"	7" x 8" Column; 4" x 3" x 10 lbs. H. Beam; Protection: Gravel concrete (5520 PSI); 4" x 4" mesh; 16 SWG.	12 tons	2 hr. 50min.			7	1	2-3/4

TABLE 2.5.1.2

## NOTES

1. Failure mode - collapse.

FIGURE 2.5.1.3

## STEEL COLUMN - CONCRETE ENCASUREMENTS

Minimum Dimension 8" to Less Than 10"

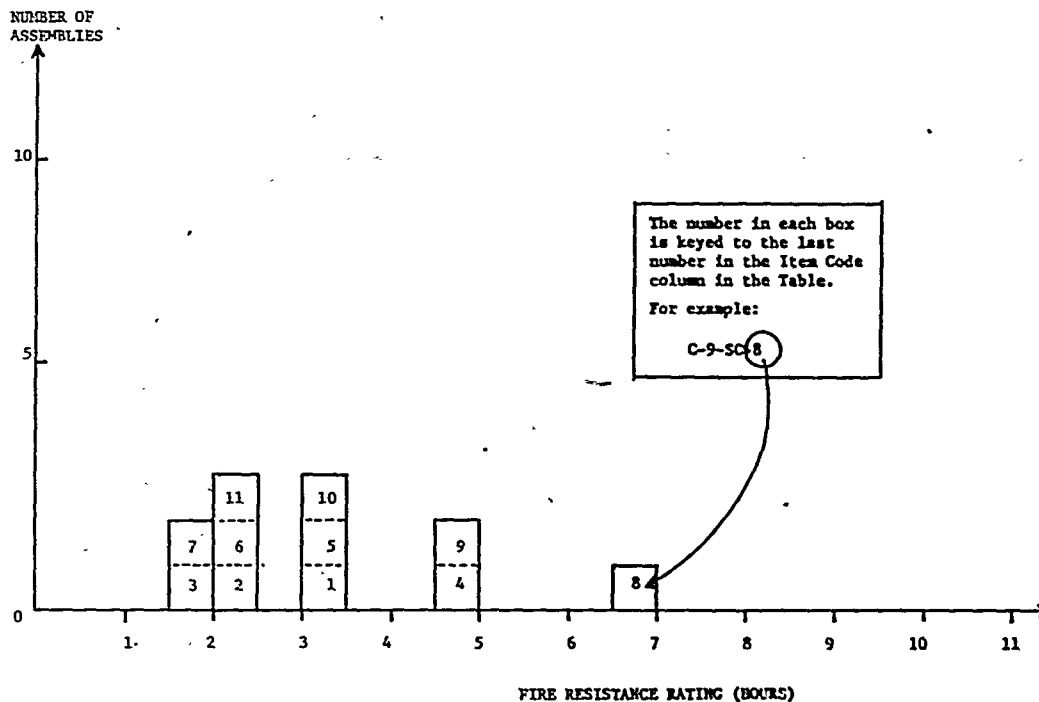


TABLE 2.5.1.3

## STEEL COLUMNS - CONCRETE ENCASUREMENTS

Minimum Dimension 8" to Less Than 10"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-8-SC-1	8½"	8½"x 10" Column; 6"x 4½" x 20 lbs. H Beam; Protection: Gravel concrete (5140 PSI) 6" x 4" 13 SWG mesh.	39 tons	3 hr. 8 min			7	1	3
C-8-SC-2	8"	8"x 10" Column; 8"x 6"x 35lbs I Beam; Protection: Gravel concrete (4240 PSI) 4"x 6" mesh; 13 SWG with ½" cover.	90 tons	2 hr. 1 min			7	1	2
C-8-SC-3	8"	8"x 10" Concrete encased column; 8"x 6" x 35 lb H Beam; Protection: Aggregate concrete (3750 PSI) with 4" mesh - 16 SWG reinforcing ½" below column surface.	90 tons	1 hr. 58min			7	1	1-3/4
C-8-SC-4	8"	6"x 6" Steel Column with 2" outside protection. Group I.	—	5 hrs		1		2	5
C-8-SC-5	8"	6"x 6" Steel Column with 2" outside protection. Group II.	—	3 hrs 30 min		1		2	3½
C-8-SC-6	8"	6"x 6" Steel Column with 2" outside protection. Group III.	—	2 hrs 30 min		1		2	2½
C-8-SC-7	8"	6"x 6" Steel Column with 2" outside protection. Group IV.	—	1 hr. 45 min		1		2	1-3/4

### 2.5.1.3 (cont'd)

**Smallest Dimension - 8" to Less Than 10"**

[illegible]

TABLE 2.5.1.3

## NOTES

1. Failure mode - collapse.
2. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
- Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
- Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
- Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.

FIGURE 2.5.1.4

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension - 10" to Less Than 12"

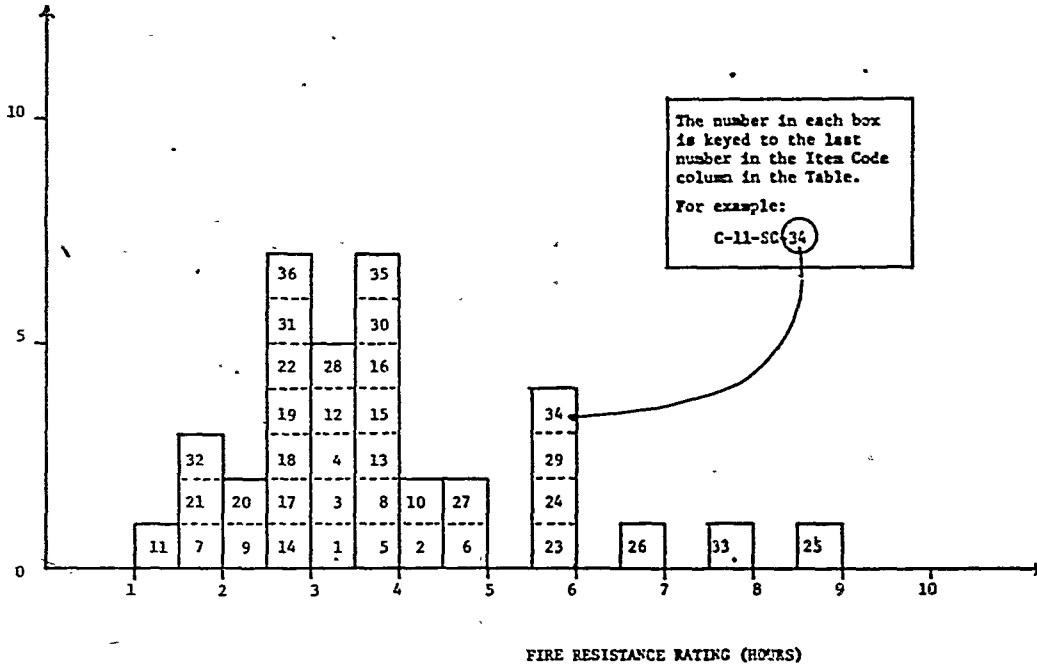
NUMBER OF  
ASSEMBLIES

TABLE 2.5.1.4

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension - 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-10-SC-1	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" Beam; Protection: Gravel aggregate concrete (3640 PSI); Mesh 6"x 4"; 13 SWG, 1" below column surface.	90 tons	3 hr. 7 min			7	1,2	3
C-10-SC-2	10"	Column: 10"x 16"; 8"x 6"x 35 lb. "H" beam; Protection: Clay brick concrete (3630 PSI); 6" x 4" mesh; 13 SWG, mesh 1" below column surface.	90 tons	4 hr. 6 min			7	2	4
C-10-SC-3	10"	Column: 10"x 12"; 8"x 6"x 35 lb. "H" beam; Protection: Concrete of crushed stone and sand (3930 PSI) 6"x 4" - 13 SWG mesh; 1" below column surface.	90 tons	3 hr. 17min			7	2	3-1/2
C-10-SC-4	10"	Column: 10"x 12"; 8"x 6"x 35 lb. "H" beam; Protection: Concrete of crushed basalt and sand (4350 PSI) 6"x 4" 13 SWG mesh; 1" below column surface.	90 tons	3 hr. 22min			7	2	3-1/3
C-10-SC-5	10"	Column: 10"x 12"; 8"x 6"x 35 lb. "H" beam; Protection: Concrete gravel aggregate (5570 PSI); 6"x 4" mesh; 13 SWG.	90 tons	3 hr. 39min			7	2	3 1/2
C-10-SC-6	10"	Column: 10"x 16"; 8"x 6"x 35 lb "I" beam; Protection: gravel concrete (4950 PSI); mesh 6"x 4" 13 SWG; 1" below column surface.	90 tons	4 hr. 32min			7	2	4 1/2
C-10-SC-7	10"	10"x 12" concrete encased steel column; 8"x6" x 35 lb. "H" beam; Protection: aggregate concrete (1370 PSI) with 6"x 4" mesh; 13 SWG reinforcing 1" below column surface.	90 tons	2 hr.			7	3,4	2

## 2.5.1.4 (cont'd)

Minimum Dimension - 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-10-SC-8	10"	10"x 12" Concrete encased steel column; 8"x 6"x 35 lb. "H" column; Protection: aggregate concrete (4000 PSI) with 13 SWG iron wire loosely wound around column @ 6" pitch about 2" beneath column surface.	86 tons	3 hr. 36min			7	2	3 1/2
C-10-SC-9	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: aggregate concrete (3290 PSI); 2" cover minimum.	86 tons	2 hr. 8 min			7	2	2
C-10-SC-10	10"	10"x 14" concrete encased steel column; 8"x 6"x 35 lb. "H" column; Protection: crushed brick filled concrete (5310 PSI) with 6"x 4" mesh 13 SWG reinforcement 1" beneath column surface	90 tons	4 hr. 28min			7	2	4-1/3
C-10-SC-11	10"	10"x 12" concrete encased column; 8"x 6"x 35lb "H" beam; Protection: aggregate concrete (342 PSI) with 6"x 4" mesh; 13 SWG reinforcements 1" below surface.	90 tons	1 hr. 2 min			7	2	1
C-10-SC-12	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" beams; Protection: aggregate concrete (4480 PSI) 4- 3/8" vertical rebars @ H beam edges with 3/16" spacers @ beam surface @ 3" pitch and 3/16 binders @ 10" pitch; 2" concrete cover.	90 tons	3 hr. 2 min			7	2	3
C-10-SC-13	10"	10"x 12" Concrete encased steel column; 8"x 6"x 35 lb "H" beam; Protection: aggregate concrete (5070 PSI) with 6"x 4" mesh; 13 SWG reinforcing @ 6" beam sides wrapped and held by wire ties across (open) 8" beam face; Reinforcements wrapped in 6"x 4" mesh; 13 SWG throughout with 1/2" cover to column surface.	90 tons	3 hr. 59min			7	2	3-3/4
C-10-SC-14	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" column; Protection: aggregate concrete (4410 PSI) with 6"x 4" mesh; 13 SWG reinforcement 1 1/2" below column surface; 1/2" lime-cement plaster with 3/8" gypsum plaster finish	90 tons	2 hr. 50min			7	2	2-3/4
C-10-SC-15	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: crushed clay brick filled concrete (4260 PSI) with 6"x 4" mesh; 13 SWG reinforcing 1" below column surface.	90 tons	3 hr. 54min			7	2	3-3/4
C-10-SC-16	10"	10"x 12" concrete encased steel columns; 8"x 6"x 35 lb. "H" beams; Protection: Limestone aggregate concrete (4350 PSI) 6"x 4" mesh; 13 SWG reinforcing 1" below column surface.	90 tons	3 hr. 54min			7	2	3-3/4
C-10-SC-17	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: Limestone aggregate concrete (5300 PSI) with 6"x 4"; 13 SWG wire mesh 1" below column surface.	90 tons	3 hr.			7	4,5	3
C-10-SC-18	10"	10"x 12" concrete encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: Limestone aggregate concrete (4800 PSI) with 6"x 4"; 13 SWG mesh reinforcement 1" below surface.	90 tons	3 hr.			7	4,5	3
C-10-SC-19	10"	10"x 14" concrete encased steel column; 12"x 8"x 65 lb. "H" beam; Protection: aggregate concrete (3900 PSI) 4" mesh; 16 SWG reinforcing 1 1/2" below column surface.	118 tons	2 hr. 42min			7	2	2
C-10-SC-20	10"	10"x 14" concrete encased steel column; 12"x 8"x 65 lb. "H" beam; Protection: aggregate concrete (4930 PSI); 4" mesh; 16 SWG reinforcing 1 1/2" below column surface.	177 tons	2 hr. 8 min			7	2	2
C-10-SC-21	10-3/8"	10-3/8"x 12-3/8" concrete encased steel column 8"x 6"x 35 lb. "H" beam; Protection: aggregate concrete (835 PSI) with 6"x 4" mesh; 13 SWG reinforcing 1-3/16" below column surface; 3/16" gypsum plaster finish.	90 tons	2 hr.			7	3,4	2
C-11-SC-22	11"	11"x 13" concrete encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: "open texture" brick filled concrete (890 PSI) with 6" x 4" mesh; 13 SWG reinforcing 1 1/2" below column surface; 3/8" lime cement plaster; 1/8" gypsum plaster finish.	90 tons	3 hr.			7	6,7	3



## 2.5.1.4 (cont'd)

Minimum Dimension - 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details*	Performance		Reference Number			Notes	Remarks
			Load	Time	Pre-EMG-92	EMG-92	Post-EMG-92		
C-11-SC-23	11"	11"x 12" column; 4"x 3"x 10 lb. "H" beam; gravel concrete (4550 PSI); 6"x 4" - 13 SWG mesh reinforcing; 1" below column surface.	12 tons	6 hr.			7	7,8	6
C-11-SC-24	11"	11"x 12" column; 4"x 3"x 10 lb. "H" beam; Protection: gravel aggregate concrete (3830 PSI) with 4"x 4" mesh; 16 SWG; 1" below column surface.	16 tons	5 hr. 12 min			7	2	
C-10-SC-25	10"	6"x 6" steel column with 4" outside protection Group I.	--	9 hrs		1		9	3
C-10-SC-26	10"	Description as per C-10-SC-25; Group II.	--	7 hrs		1		9	
C-10-SC-27	10"	Description as per C-10-SC-25; Group III.	--	5 hrs		1		9	
C-10-SC-28	10"	Description as per C-10-SC-25; Group IV.	--	3 hrs 30 min		1		9	3
C-10-SC-29	10"	8"x 8" steel column with 2" outside protection Group I.	--	6 hrs		1		9	6
C-10-SC-30	10"	Description as per C-10-SC-29; Group II.	--	4 hrs		1		9	6
C-10-SC-31	10"	Description as per C-10-SC-29; Group III.	--	3 hrs		1		9	
C-10-SC-32	10"	Description as per C-10-SC-29; Group IV.	--	2 hrs		1		9	
C-11-SC-33	11"	8"x 8" steel column with 3" outside protection; Group I.	--	3 hrs		1		9	4
C-11-SC-34	11"	Description as per C-11-SC-33; Group II.	--	6 hrs		1		9	6
C-11-SC-35	11"	Description as per C-11-SC-33; Group III.	--	4 hrs		1		9	4
C-11-SC-36	11"	Description as per C-11-SC-33; Group IV.	--	3 hrs		1		9	3

TABLE 2.5.1.4

## NOTES

1. Tested under total restraint load to prevent expansion - minimum load 93 tons.
2. Failure mode - collapse.
3. Passed 2 hour fire test ("Grade C" - British).
4. Passed hose stream test.
5. Column tested and passed 3 hour grade fire resistance (British).
6. Column passed 3 hour fire test.
7. Column collapsed during hose stream testing.
8. Column passed 6 hour fire test.
9. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
- Group II - includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
- Group III - includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
- Group IV - includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.

FIGURE 2.5.1.5

## STEEL COLUMN - CONCRETE ENCASEMENTS

Minimum Dimension 12" to Less Than 14"

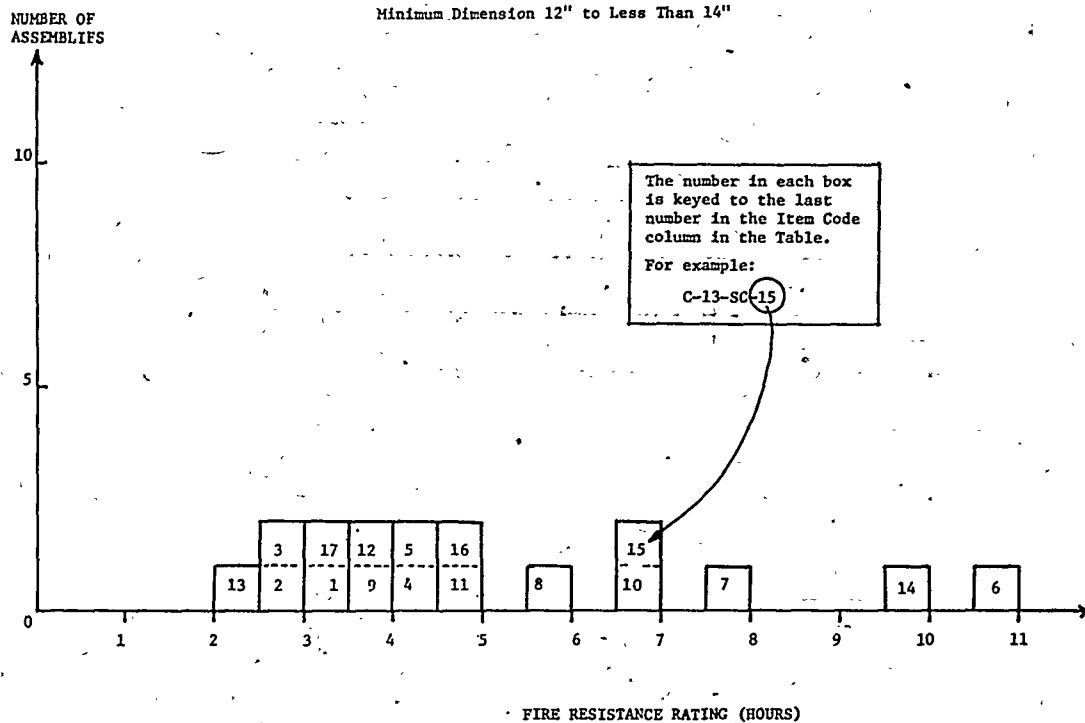


TABLE 2.5.1.5

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension - 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-SC-1	12"	12"x 14" Concrete encased steel column; 8"x 6" x 35lb "H" beam; Protection: Aggregate concrete (4150 PSI) with 4" mesh; 16 SWG reinforcing 1" below column surface.	120 tons	3 hr. 24min			7	1	3-1/3
C-12-SC-2	12"	12"x 16" Concrete encased column; 8"x 6"x 35lb "H" beam; Protection: Aggregate concrete (4300 PSI) with 4" mesh; 16 SWG reinforcing 1" below surface.	90 tons	2 hr. 52min			7	1	2-3/4
C-12-SC-3	12"	12"x 16" Concrete encased steel column; 12"x 8" x 65 lb "H" column; Protection: Gravel aggregate concrete (3550 PSI) with 4" mesh; 16 SWG reinforcement 1" below column surface.	177 tons	2 hr. 31min			7	1	2 1/2
C-12-SC-4	12"	12"x 16" concrete encased column; 12"x 8"x 65lb "H" beam; Protection: Aggregate concrete (3450 PSI) with 4" - 16 SWG mesh reinforcement 1" below column surface.	118 tons	4 hr. 4 min			7	1	4
C-12-SC-5	12 1/2"	12 1/2"x 14" Column; 6" x 4 1/2" x 20 lb. "H" beam; Protection: Gravel aggregate concrete (3750 PSI) with 4"x 4" mesh; 16 SWG reinforcing 1" below column surface.	52 tons	4 hr. 29min			7	1	4-1/3
C-12-SC-6	12"	8"x 8" steel column; 2" outside protection; Group I.	--	11 hrs			1	2	11

## 2.5.1.5 (cont'd)

Minimum Dimension - 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-SC-7	12"	Description as per C-12-SC-6; Group II.	—	8 hrs.		1		2	8
C-12-SC-8	12"	Description as per C-12-SC-6; Group III.	—	6 hrs.		1		2	6
C-12-SC-9	12"	Description as per C-12-SC-6; Group IV.	—	4 hrs.		1		2	4
C-12-SC-10	12"	10"x 10" steel column with 2" outside protection; Group I.	—	7 hrs.		1		2	7
C-12-SC-11	12"	Description as per C-12-SC-10; Group II.	—	5 hrs.		1		2	5
C-12-SC-12	12"	Description as per C-12-SC-10; Group III.	—	4 hrs.		1		2	4
C-12-SC-13	12"	Description as per C-12-SC-10; Group IV.	—	2 hrs. 30 min		1		2	2½
C-13-SC-14	13"	10"x 10" steel column with 3" outside protection; Group I.	—	10 hrs.		1		2	10
C-13-SC-15	13"	Description as per C-13-SC-14; Group II.	—	7 hrs.		1		2	7
C-13-SC-16	13"	Description as per C-13-SC-14; Group III.	—	5 hrs.		1		2	5
C-13-SC-17	13"	Description as per C-13-SC-14; Group IV.	—	3 hrs. 30 min		1		2	3½

TABLE 2.5.1.5

## NOTES

1. Failure mode - collapse.
2. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.  
 Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.  
 Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.  
 Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.

FIGURE 2.5.1.6

## STEEL COLUMN - CONCRETE ENCASEMENTS

Minimum Dimension 14" to Less Than 16"

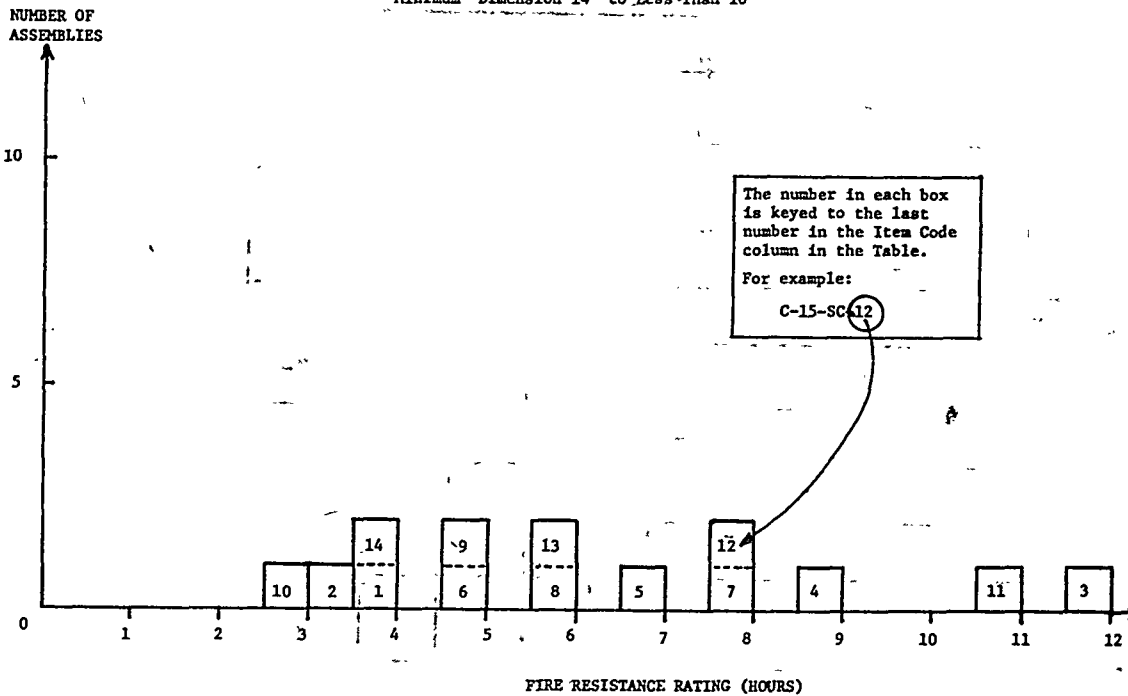


TABLE 2.5.1.6

## STEEL COLUMNS - CONCRETE ENCASEMENTS

Minimum Dimension - 14" to Less Than 16"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-14-SC-1	14"	14" x 16" Concrete encased steel column; 8" x 6" x 35 lbs. "H" column; Protection - Aggregate concrete (4240 PSI) - 4" mesh - 16 S.W. G reinforcing - 1" below column surface.	90 tons	3 hr. 40min.			7	1	3
C-14-SC-2	14"	14" x 18" Concrete encased steel column; 12" x 8" x 65 lbs. "H" Beam; Protection - Gravel aggregate concrete (4000 PSI) with 4" - 16 S.W.G. wire mesh reinforcement 1" below column surface.	177 tons	3 hr. 20min.			7	1	3
C-14-SC-3	14"	10" x 10" steel column with 4" outside protection; Group I.	—	12 hrs		1		2	12
C-14-SC-4	14"	Description as per C-14-SC-3; Group II.	—	9 hrs		1		2	9
C-14-SC-5	14"	Description as per C-14-SC-3; Group III.	—	7 hrs		1		2	7
C-14-SC-6	14"	Description as per C-14-SC-3; Group IV.	—	5 hrs		1		2	5
C-14-SC-7	14"	12" x 12" steel column with 2" outside protection; Group I.	—	8 hrs		1		2	8
C-14-SC-8	14"	Description as per C-14-SC-7; Group II.	—	6 hrs		1		2	6

## 2.5.1.6 (cont'd)

## Minimum Dimension - 14" to Less Than 16"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-14-SC-9	14"	Description as per C-14-SC-7; Group III.	---	5 hrs		1		2	5
C-14-SC-10	14"	Description as per C-14-SC-7; Group IV.	---	3 hrs		1		2	3
C-15-SC-11	15"	12"x 12" steel column with 3" outside protection; Group I.	---	11 hrs		1		2	11
C-15-SC-12	15"	Description as per C-15-SC-11; Group II.	---	8 hrs		1		2	8
C-15-SC-13	15"	Description as per C-15-SC-11; Group III.	---	6 hrs		1		2	6
C-15-SC-14	15"	Description as per C-15-SC-11; Group IV.	---	4 hrs		1		2	4

TABLE 2.5.1.6

## NOTES

1. Collapse.
  2. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
- Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
- Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
- Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.

Minimum Dimension 16" to Less Than 18"

[illegible]

## TABLE 2.5.1.7

## NOTES

1. Group I - includes concrete having calcareous aggregate containing a combined total of not more than 10 percent of quartz, chert and flint for the coarse aggregate.
- Group II- includes concrete having trap-rock aggregate applied without metal ties and also concrete having cinder, sandstone, or granite aggregate, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup>, placed not more than 1 in. from the surface of the concrete.
- Group III- includes concrete having cinder, sandstone, or granite aggregate tied with No. 5 gage steel wire, wound spirally over the column section on a pitch of 8 in., or equivalent ties, and concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, if held in place with wire mesh or expanded metal having not larger than 4-in. mesh, weighing not less than 1.7 lb/yd<sup>2</sup> placed not more than 1 in. from the surface of the concrete.
- Group IV- includes concrete having siliceous aggregates containing a combined total of 60 percent or more of quartz, chert, and flint, and tied with No. 5 gage steel wire wound spirally over the column section on a pitch of 8 in., or equivalent ties.

TABLE 2.5.2.1

## STEEL COLUMNS - BRICK &amp; BLOCK ENCASEMENTS

Minimum Dimension 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Fire Hours
			Load	Time	Pre-EMG-92	EMG-92	Post-EMG-92		
C-10-SB-1	10½"	10½"x 13" Brick encased steel column; 8"x 6"x 35 lb. "H" Beam; Protection: Fill of broken brick and mortar; 2" brick on edge, joints broken in alt. courses. Cement-sand grout; 13 SWG wire reinforcement in every third horizontal joint.	90 tons	3 hr. 6 min.			7	1	3
C-10-SB-2	10½"	10½"x 13" brick encased steel column; 8"x 6"x 35 lb. "H" beam; Protection: 2" brick, joints broken in alt. courses; Cement-sand grout; 13 SWG iron wire reinforcement in alternate horizontal joints.	90 tons	2 hr.			7	2-4	2
C-10-SB-3	10"	10"x 12" block encased column; 8"x 6"x 35lb. "H" beam; Protection: 2" foamed slag concrete blocks; 13 SWG wire at each horizontal joint; mortar at each joint.	90 tons	2 hr.			7	5	2
C-10-SB-4	10½"	10½" x 12" block encased steel column; 8"x 6" x 35 lb. "H" beam; Protection: Gravel aggregate concrete fill (unconsolidated) 2" thick hollow clay tiles with mortar at edges.	86 tons	56 min.			7	1	3/4
C-10-SB-5	10½"	10½" x 12" block encased steel column; 8"x 6" x 35 lb. "H" beam; Protection: 2" hollow clay tiles with mortar at edges.	86 tons	22 min.			7	1	1/4

TABLE 2.5.2.1

## NOTES

1. Failure mode - collapse.
2. Passed 2 hr. fire test (Grade "C" British).
3. Passed hose stream test.
4. Passed reload test.
5. Passed 2 hour fire exposure but collapsed immediately following hose stream test.

TABLE 2.5.2.2

## STEEL COLUMNS - BRICK &amp; BLOCK ENCASEMENTS

Minimum Dimension 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-SB-1	12"	12" x 15" brick encased steel columns; 8" x 6" x 35 lb. "H" beam; Protection: 2-5/8" thick brick; joints broken in alt. courses; Cement-sand grout. Fill of broken brick and mortar.	90 tons	1 hr. 49 min.			7	1	1-3/4

TABLE 2.5.2.2

## NOTES

1. Failure mode - collapse.

TABLE 2.5.2.3

## STEEL COLUMNS - BRICK &amp; BLOCK ENCASEMENTS

Minimum Dimension 14" to Less Than 16"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-15-SB-1	15"	13" x 17" brick encased steel columns; 8" x 6" x 35 lb. "H" beam; Protection: 4-1/2" thick brick; joints broken in alt. courses; Cement-sand grout; Fill of broken brick and mortar	45 tons	6 hr.			7	1	6
C-15-SB-2	15"	15" x 17" brick encased steel columns; 8" x 6" x 35 lb. "H" beam; Protection: Fill of broken brick and mortar; 4 1/2" brick, joints broken in alt. courses; Cement-sand grout.	86 tons	6 hr.			7	2-4	6
C-15-SB-3	15"	15" x 18" brick encased steel columns; 8" x 6" x 35 lb. "H" beam; Protection: 4 1/2" brick work; joints alternating; Cement-sand grout.	90 tons	4 hr.			7	5,6	4
C-14-SB-4	14"	14" x 16" block encased steel columns; 8" x 6" x 35 lb. "H" beam; Protection: 4" thick foam slag concrete blocks; 13 SWG wire reinforcement in each horizontal joint; mortar in joints.	90 tons	5 hr. 52min.			7	7	4-3/4

TABLE 2.5.2.3

## NOTES

1. Only a nominal load was applied to specimen.
2. Passed 6 hr. fire test (Grade "A" - British).
3. Passed (6 min.) hose stream test.
4. Reload not specified.
5. Passed 4 hour fire exposure.
6. Failed by collapse between 1st and 2nd minute of hose stream exposure.
7. Mode of failure - collapse.



TABLE 2.5.3.1

## STEEL COLUMNS - PLASTER ENCASEMENTS

Minimum Dimension - 6" to Less Than 8"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-7-SP-1	7½"	7½"x 9½" Plaster protected steel columns; 8"x 6" x 35 lb. "H" beam; Protection: 24 SWG wire metal lath; 1½" lime plaster.	90 tons	57min			7	1	3/4
C-7-SP-2	7-7/8"	7-7/8"x 10" plaster protected steel columns; 8"x 6"x 35 lb. "H" beam; Protection: 3/8" gypsum bal. wire wound with 16 SWG wire helically wound @ 4" pitch; ½" gypsum plaster.	90 tons	1 hr. 13min			7	1	1
C-7-SP-3	7½"	7½"x 9-3/8" plaster protected steel columns; 8"x 6"x 35 lb "H" beam; Protection: 3/8" gypsum board; wire helically wound 16 SWG @ 4" pitch; ½" gypsum plaster finish.	90 tons	1 hr. 14min			7	1	1

TABLE 2.5.3.1

## NOTES

1. Failure mode - collapse.

TABLE 2.5.3.2

## STEEL COLUMNS - PLASTER ENCASEMENTS

Minimum Dimension - 8" to Less Than 10"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-8-SP-1	8"	8"x 10" plaster protected steel columns; 8"x 6" x 35 lb. "H" beam; Protection: 24 SWG wire lath with 1" gypsum plaster.	86 tons	1 hr. 23min.			7	1	1½
C-8-SP-2	8½"	8½"x 10½" plaster protected steel columns; 8"x 6"x 35 lb. "H" beam; Protection: 24 SWG metal lath wrap; 1½" gypsum plaster.	90 tons	1 hr. 36min			7	1	1½
C-9-SP-3	9"	9"x 11" plaster protected steel columns; 8"x 6"x 35 lb. "H" beam; Protection: 24 SWG metal lath wrap; 1/8" M.S. ties at 12" pitch wire netting 1½" x 22 SWG between 1st and 2nd plaster coats; 1½" gypsum plaster.	90 tons	1 hr. 33min			7	1	1½
C-8-SP-4	8-3/4"	8-3/4"x 10-3/4" plaster protected steel columns; 8"x 6"x 35 lb. "H" beam; Protection: 3/4" gypsum board - wire wound spirally (#16 SWG) @ 1½" pitch; ½" gypsum plaster.	90 tons	2 hr.			7	2-4	2

TABLE 2.5.3.2

## NOTES

1. Failure mode - collapse.
2. Passed 2 hr. fire exposure test (Grade "C" - British).
3. Passed hose stream test.
4. Passed reload test.

TABLE 2.5.4.1

## STEEL COLUMNS - MISCELLANEOUS ENCASEMENTS

Minimum Dimension 6" to Less Than 8"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-7-SH-1	7-5/8"	7-5/8"x 9 1/2" (Asbestos plaster) protected steel columns; 8"x 6"x 35 lb. "H" beam; Protection: 20 Ga. 1/2" metal lath; 9/16" asbestos plaster (min.)	90 tons	1 hr. 52min.			7	1	1-3/4

TABLE 2.5.4.1

## NOTES

1. Failure mode - collapse.

TABLE 2.5.4.2

## STEEL COLUMNS - MISCELLANEOUS ENCASEMENTS

Minimum Dimension 8" to Less Than 10"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-9-SH-1	9-5/8"	9-5/8"x 11-3/8" Asbestos slab and cement plaster protected columns; 8"x 6"x 35 lb. "H" beam; Protection: 1" asbestos slabs, wire wound, 5/8" plaster.	90 tons	2 hr.			7	1,2	2

TABLE 2.5.4.2

## NOTES

1. Passed 2 hr. fire exposure test.
2. Collapsed during hose stream test.

TABLE 2.5.4.3

## STEEL COLUMNS - MISCELLANEOUS ENCASEMENTS

Minimum Dimension 10" to Less Than 12"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-11-SM-1	11½"	11½"x 13½" Wood wool and plaster protected steel columns; 8" x 6" x 35 lb. "H" beam; Protection: Wood-wool-cement paste as fill and to 2" cover over beam; ¾" gypsum plaster finish.	90 tons	2 hr.			7	1-3	2
C-10-SM-2	10"	10"x 12" asbestos protected steel columns; 8"x 6" x 35 lb. "H" beam; Protection: sprayed on asbestos paste to 2" cover over column.	90 tons	4 hr.			7	2-4	4

TABLE 2.5.4.3

## NOTES

1. Passed 2 hr. fire exposure (Grade "C" - British).
2. Passed hose stream test.
3. Passed reload test.
4. Passed 4-hour fire exposure test.

TABLE 2.5.4.4

## STEEL COLUMNS - MISCELLANEOUS ENCASEMENTS

Minimum Dimension 12" to Less Than 14"

Item Code	Minimum Dimension	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
C-12-SM-1	12"	12"x 14½" Cement and asbestos protected column; 8" x 6" x 35 lb. "H" beam; Protection: Fill of asbestos packing pieces, 1" thick 1'3" O.C.; Cover of 2" molded asbestos inner layer; 1" molded asbestos, outer layer; held in position by 16 SWG nichrome wire ties; Wash of refractory cement on outer surface.	86 tons	4 hr. 43 min.			7	1-3	4-2/3

TABLE 2.5.4.4

## NOTES

1. Passed 4 hour fire exposure ("Grade B" - British)
2. Passed hose stream test.
3. Passed reload test.

## SECTION III

## FLOOR CEILING ASSEMBLIES

FIGURE 3.1

FLOOR/CEILING ASSEMBLIES - REINFORCED CONCRETE

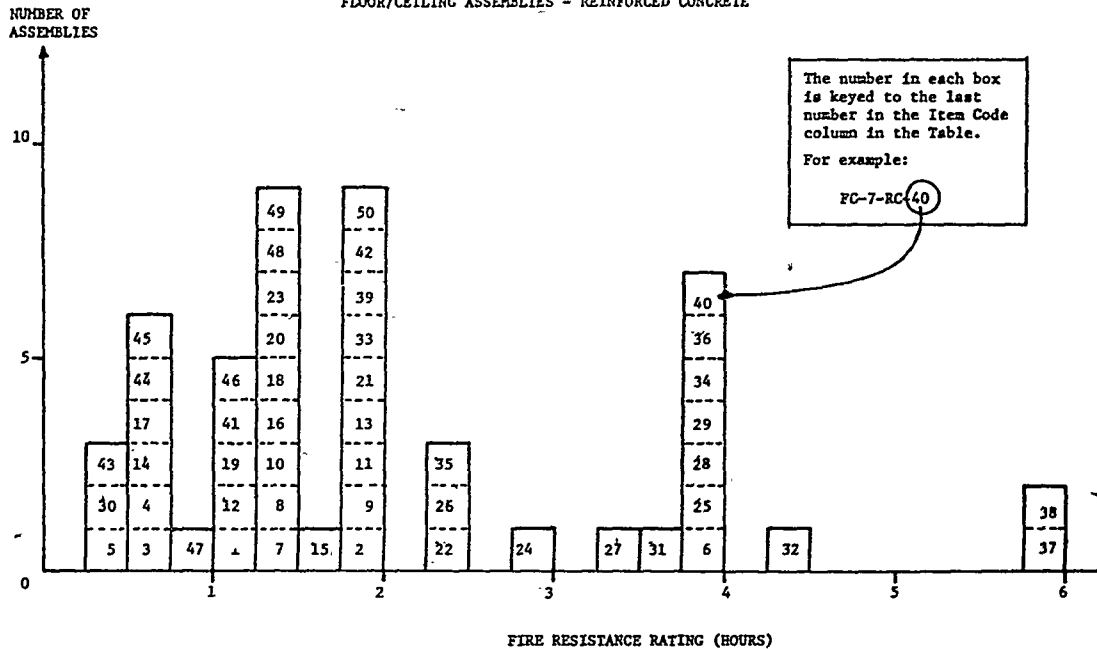


TABLE 3.1

Floor Ceiling Assemblies - Reinforced Concrete

Item Code	Assembly Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
FC-3-RC-1	3-3/4"	3-3/4" thick floor; 3/4" (5475 PSI) concrete deck; 1/2" plaster under deck; 3/8" main rein. bars @ 5 1/2" pitch with 7/8" concrete cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" concrete cover. 13'1" span restrained.	195 PSF	24min			7	1,2	1
FC-3-RC-2	3 1/4"	3 1/4" deep (3540 PSI) concrete deck; 3/8" main rein. bars @ 5 1/2" pitch with 7/8" cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" cover. 13'1" span restrained.	195 PSF	2 hr.			7	1,3,4	1-3/4
FC-3-RC-3	3 1/4"	3 1/4" deep (4175 PSI) concrete deck; 3/8" main rein. bars @ 5 1/2" pitch with 7/8" cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" cover; 13'1" span restrained.	195 PSF	31min			7	1,5	1/2
FC-3-RC-4	3 1/4"	3 1/4" deep (4355 PSI) concrete deck; 3/8" main rein. bars @ 5 1/2" pitch with 7/8" cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" cover; 13'1" span restrained.	195 PSF	41min			7	1,5,6	1/2
FC-3-RC-5	3 1/2"	3 1/2" thick (3800 PSI) concrete deck; 3/8" main rein. bars @ 5 1/2" pitch with 7/8" cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" cover. 13'1" span restrained.	195 PSF	1 hr. 5 min.			7	1,5	1/2
FC-4-RC-6	4 1/4"	4 1/4" thick; 3 1/2" concrete deck (4000 PSI); 1" sprayed asbestos lower surface; 3/8" main rein. bars @ 5-7/8" pitch with 7/8" concrete cover; 3/8" main rein. bars @ 4 1/2" pitch perpendicular with 1/2" concrete cover; 13'1" span restrained.	195 PSF	4 hr.			7	1,7	4
FC-4-RC-7	4"	4" deck (5025 PSI) 1/2" rein bars @ 7 1/2" pitch with 3/4" cover; 3/8" main rein. bars @ 3-3/4" pitch perpendicular with 1/2" cover; 13'1" span restrained.	140 PSF	1 hr. 16 min			7	1,2	1 1/2

TABLE 3.1 (cont'd)

## Floor Ceiling Assemblies - Reinforced Concrete

Item Code	Assembly Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
FC-4-RC-8	4"	4" thick (4905 PSI) deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{3}{4}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 13' 1" span restrained.	100 PSF	1 hr. 23 min			7	1,2	1-1/3
FC-4-RC-9	4"	4" deep (4370 PSI); $\frac{1}{2}$ " rein. bars @ 6" pitch with $\frac{3}{4}$ " cover; $\frac{1}{2}$ " main rein. bars @ 4" pitch perpendicular with $\frac{1}{2}$ " cover; 13' 1" span restrained.	150 PSF	2 hr.			7	1,3	2
FC-4-RC-10	4"	4" thick (5140 PSI) deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{3}{4}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 13' 1" span restrained.	140 PSF	1 hr. 16 min			7	1,5	1 $\frac{1}{2}$
FC-4-RC-11	4"	4" thick (4000 PSI) concrete deck; 3"x1 $\frac{1}{2}$ "x4 lb R.S.J.; 2'6" C.R.S.; flush with top surface; 4"x6"x13 S.W.G. mesh rein. 1" from bottom of slab; 6'6" span restrained.	150 PSF	2 hr.			7	1,3	2
FC-4-RC-12	4"	4" deep (2380 PSI) concrete deck; 3"x1 $\frac{1}{2}$ "x4 lb R.S.J.; 2'6" C.R.S.; flush with top surface; 4"x6"x13 S.W.G. mesh rein. 1" from bottom surface; 6'6" span restrained.	150 PSF	1 hr. 3 min.			7	1,2	1
FC-4-RC-13	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " thick (5200 PSI) deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{3}{4}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 13' 1" span restrained.	140 PSF	2 hr.			7	1,3	2
FC-4-RC-14	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (2525 PSI) concrete deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{3}{8}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 13' 1" span restrained.	150 PSF	42 min			7	1,5	2/3
FC-4-RC-15	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (4830 PSI) concrete deck; 1 $\frac{1}{2}$ "x No. 15 gauge wire mesh; $\frac{3}{8}$ " rein. bar @ 15" pitch with 1" cover; $\frac{1}{2}$ " main rein. bars @ 6" pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	75 PSF	1 hr. 32 min			7	1,8	1 $\frac{1}{2}$
FC-4-RC-16	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (4595 PSI) concrete deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	75 PSF	1 hr. 20 min			7	1,8	1-1/3
FC-4-RC-17	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (3625 PSI) concrete deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	75 PSF	35 min			7	1,8	$\frac{1}{2}$
FC-4-RC-18	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (4410 PSI) concrete deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	85 PSF	1 hr. 27 min			7	1,8	1-1/3
FC-4-RC-19	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (4850 PSI) deck; $\frac{3}{8}$ " rein. bars @ 15" pitch with 1" cover; $\frac{1}{2}$ " main rein. bars @ 6" pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	75 PSF	2 hr. 15 min			7	1,9	1 $\frac{1}{2}$
FC-4-RC-20	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ " deep (3610 PSI) deck; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	75 PSF	1 hr. 22 min			7	1,8	1-1/3
FC-5-RC-21	5"	5" deep; 4 $\frac{1}{2}$ " (5830 PSI) concrete deck; $\frac{1}{2}$ " plaster finish bottom of slab; $\frac{1}{2}$ " rein. bars $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	69 PSF	2 hr.			7	1,3	2
FC-5-RC-22	5"	4 $\frac{1}{2}$ " (5290 PSI) concrete deck; $\frac{1}{2}$ " plaster finish bottom of slab; $\frac{1}{2}$ " rein. bars @ $7\frac{1}{2}$ " pitch with $\frac{7}{8}$ " cover; $\frac{3}{8}$ " main rein. bars @ $3\frac{1}{2}$ " pitch perpendicular with $\frac{1}{2}$ " cover; 12' span simply supported.	No Load	2 hr. 28 min			7	1,10, 11	2 $\frac{1}{2}$
FC-5-RC-23	5"	5" Deep (3020 PSI) concrete deck; 3"x1 $\frac{1}{2}$ "x 4 lb. R.S.J.; 2' C.R.S. with 1" cover on bottom and top flanges; 8' span restrained.	172 PSF	1 hr. 24 min			7	1,2, 12	1 $\frac{1}{2}$

## 3.1 (cont'd)

## Floor Ceiling Assemblies - Reinforced Concrete

Item Code	Assembly Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
FC-5-RC-24	5½"	5" (5180 PSI) concrete deck; ½" retarded plaster underneath slab; ½" rein. bars @ 7½" pitch with 1-3/8" cover; 3/8" main rein. bars @ 3½" pitch perpendicular with 1" cover; 12' span simply supported.	60 PSF	2 hr. 48 min.			7	1,10	2-3/4
FC-5-RC-25	6"	6" deep (4800 PSI) concrete deck; ½" rein. bars @ 7½" pitch 7/8" cover; 3/8" main rein. bars @ 3½" pitch perpendicular with 7/8" cover; 13'1" span restrained.	195 PSF	4 hr.			7	1,7	4
FC-6-RC-26	6"	6" (4650 PSI) concrete deck; ½" rein. bars @ 7½" pitch with 7/8" cover; 3/8" main rein. bars @ 3½" pitch perpendicular with ½" cover; 13'1" span restrained.	195 PSF	2 hr. 23 min.			7	1,2	2½
FC-6-RC-27	6"	6" deep (6050 PSI) concrete deck; ½" rein. bars @ 7½" pitch with 7/8" cover; 3/8" main rein. bars @ 3½" pitch perpendicular with ½" cover; 13'1" span restrained.	195 PSF	3 hr. 30 min.			7	1,10	3½
FC-6-RC-28	6"	6" deep (5180 PSI) concrete deck; ½" bars @ 8" pitch 3/4" cover; ½" bars @ 5½" pitch with ½" cover perpendicular; 13'1" span restrained.	150 PSF	4 hr.			7	1,7	4
FC-6-RC-29	6"	6" thick (4180 PSI) concrete deck; 4"x3"x10 lb. R.S.J.; 2'6" C.R.S. with 1" cover on both bottom and top flanges; 13'1" span restrained.	160 PSF	3 hr. 48 min.			7	1,10	3-3/4
FC-6-RC-30	6"	6" thick (3720 PSI) concrete deck; 4"x3"x10 lb. R.S.J.; 2'6" C.R.S. with 1" cover on both top & bottom flanges; 12' span simply supported.	115 PSF	29 min.			7	1,5, 13	½
FC-6-RC-31	6"	6" deep (3450 PSI) concrete deck; 4"x1-3/4" x 5 lb. R.S.J.; 2'6" C.R.S. with 1" cover on both top and bottom flanges; 12' span simply supported.	25 PSF	3 hr. 35 min.			7	1,2	3½
FC-6-RC-32	6"	6" deep (4460 PSI) concrete deck; 4"x1-3/4" x 5 lb. R.S.J.; 2' C.R.S. with 1" cover on both top and bottom flanges; 12' span simply supported.	60 PSF	4 hr. 30 min.			7	1,10	4½
FC-6-RC-33	6"	6" deep (4360 PSI) concrete deck; 4"x1-3/4"x5 lb. R.S.J.; 2' C.R.S. with 1" cover on both bottom & top flanges; 13'1" span restrained.	60 PSF	2 hr.			7	1,3	2
FC-6-RC-34	6½"	6½" thick; 4-3/4" (5120 PSI) concrete core; 1" T&G board flooring; ½" plaster undercoat; 4"x3"x10 lb. R.S.J.; 3' C.R.S. flush with top surface concrete 12' span simply supported; 2"x1'3" clinker concrete insert.	100 PSF	4 hr.			7	1,7	4
FC-6-RC-35	6½"	4-3/4" (3600 PSI) concrete core; 1" T&G board flooring; ½" plaster undercoat; 4"x3"x10 lb. R.S.J.; 3' C.R.S.; flush with top surface concrete; 12' span simply supported; 2"x1'3" clinker concrete insert.	100 PSF	2 hr. 30 min.			7	1,5	2½
FC-6-RC-36	6½"	4-3/4" (2800 PSI) concrete core; 1" T&G board flooring; ½" plaster undercoat; 4"x3"x10 lb. R.S.J.; 3' C.R.S.; flush with top surface concrete; 12' span simply supported; 2"x1'3" clinker concrete insert.	80 PSF	4 hr.			7	1,7	4
FC-7-RC-37	7"	(3640 PSI) concrete deck; ½" rein. bars @ 6" pitch 1½" cover; ½" rein. bars @ 5" pitch 1½" cover perpendicular; 13'1" span restrained.	169 PSF	6 hr.			7	1,14	6
FC-7-RC-38	7"	(4060 PSI) concrete deck; 4"x3"x10 lb. R.S.J.; 2'6" C.R.S. with 1½" cover on both top & bottom flanges; 4"x6"x13 S.W.C. mesh rein. 1½" from bottom of slab; 13'1" span restrained.	175 PSF	6 hr.			7	1,14	6
FC-7-RC-39	7½"	5-3/4" (4010 PSI) concrete core; 1" T&G board flooring; ½" plaster undercoat; 4"x3"x10 lb. R.S.J.; 2'6" C.R.S.; 1" down from top surface of concrete; 12' simply supported span; 2"x1'3" clinker concrete insert.	95 PSF	2 hr.			7	1,3	2
FC-7-RC-40	7½"	5-3/4" (3220 PSI) concrete core; 1" T&G board flooring; ½" plaster undercoat; 4"x3"x10 lb. R.S.J.; 2'6" C.R.S.; 1" down from top surface of concrete; 12' simply supported span; 2"x1'3" clinker concrete insert.	95 PSF	4 hr.			7	1,7	4

## 3.1 (cont'd)

## Floor Ceiling Assemblies - Reinforced Concrete

Item Code	Assembly Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
FC-7-RC-41	10" (2 1/2" Slab)	Ribbed floor - see detail - Note #15; Slab 2 1/2" deep (3020 PSI); 1/2" rein. bars @ 6" pitch with 3/4" cover; Beams 7 1/2" deep x 5" wide; 24" CRS; 5/8" rein. bars 2 rows 1/2" vertically apart with 1" cover; 13'1" span restrained.	195 PSF	1 hr. 4 min.			7	1,2, 15	1
FC-5-RC-42	5 1/2"	Composite ribbed concrete slab assembly; See note #17 for details.	See Note 16	2 hr.			43	16,17	2
FC-3-RC-43	3"	2500 PSI concrete, 5/8" cover; fully restrained at test.	See Note 16	30 min			43	16	1/4
FC-3-RC-44	3"	2000 PSI concrete; 5/8" cover; free or partial restraint at test.	See Note 16	45 min			43	16	3/4
FC-4-RC-45	4"	2500 PSI concrete, 5/8" cover; fully restrained at test.	See Note 16	40 min			43	16	2/3
FC-4-RC-46	4"	2000 PSI concrete, 3/4" cover; free or partial restraint at test.	See Note 16	1 hr. 15 min			43	16	1 1/2
FC-5-RC-47	5"	2500 PSI concrete; 3/4" cover; fully restrained at test.	See Note 16	1 hr.			43	16	1
FC-5-RC-48	5"	2000 PSI concrete, 3/4" cover; free or partial restraint at test.	See Note 16	1 hr. 30 min			43	16	1 1/2
FC-6-RC-49	6"	2500 PSI concrete; 1" cover; fully restrained at test.	See Note 16	1 hr. 30 min			43	16	1 1/2
FC-6-RC-50	6"	2000 PSI concrete, 1" cover free or partial restraint at test.	See Note 16	2 hrs.			43	16	2

TABLE 3.1

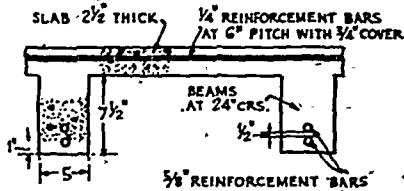
## NOTES

1. British test.
2. Failure mode - local back face temperature rise.
3. Tested for grade "C" (2 hr.) fire resistance.
4. Collapse imminent following hose stream.
5. Failure mode: flame-thru.
6. Void formed with explosive force and report.
7. Achieved grade "B" (4 hour) fire resistance (British).
8. Failure mode - collapse.
9. Test was run to 2 hr., but specimen was partially supported by the furnace at 1 1/2 hrs.
10. Failure mode: average back face temperature.

## 3.1 (cont'd)

## NOTES

11. Recommended endurance is for non-load bearing performance only.
12. Floor maintained load-bearing ability to 2 hours at which point test was terminated.
13. Test was run to 3 hours at which time failure mode 2 (above) was reached in spite of crack formation at 29 min.
14. Tested for grade "A" (6 hour) fire resistance.
- 15.



16. Load unspecified.
17. Total assembly thickness 5 1/2". 3" thick blocks of molded excelsior bonded with portland cement used as inserts with 2 1/2" cover (concrete) above blocks and 3/4" gypsum plaster below. 9" wide ribs containing reinforcing steel of unspecified size interrupted 20" wide segments of slab composite (i.e. plaster, excelsior blocks, concrete cover).



FIGURE 3.2

## FLOOR/CEILING ASSEMBLIES STEEL STRUCTURAL ELEMENTS

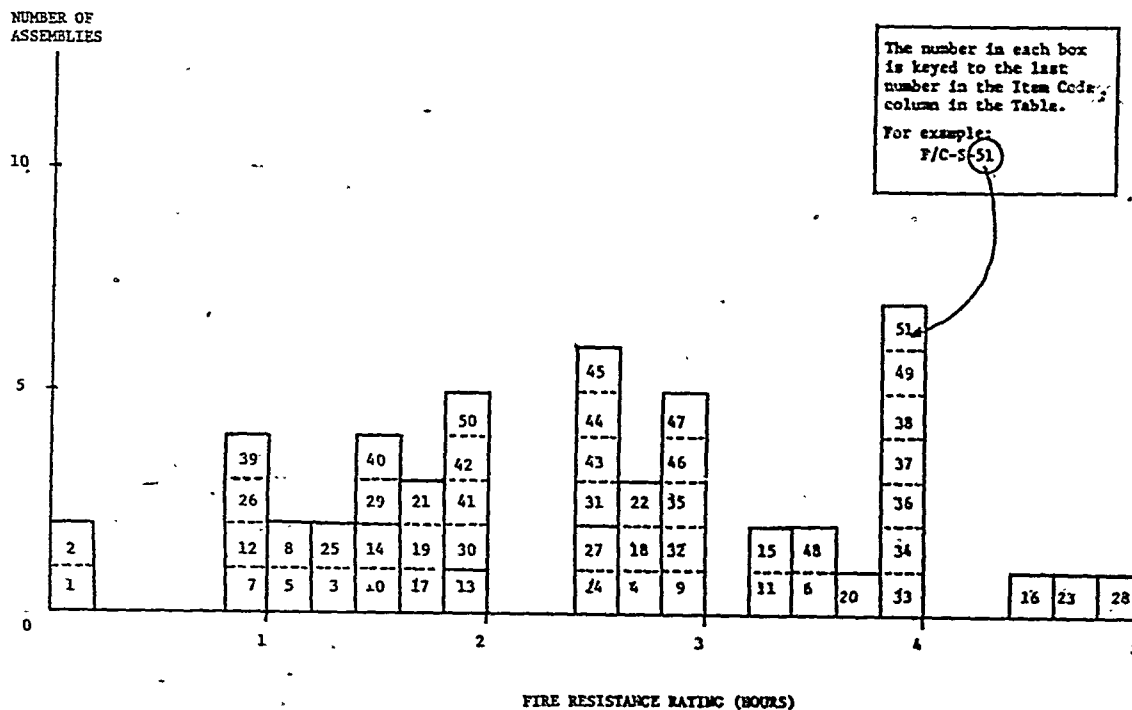


TABLE 3.2

FLOOR/CEILING ASSEMBLIES  
STEEL STRUCTURAL ELEMENTS

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-S-1	0"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete; Membrane: None.	145 PSF	7 min.			3	1,2,3,8	0
F/C-S-2	0"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete; Membrane: None.	145 PSF	7 min.			3	1,2,3,8	0
F/C-S-3	1/2"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete 1:2:4; Membrane - 12" O.C. furring clips - AEG; No extra reinforcement; Plaster 1/2" 1.5:2.5.	145 PSF	1 hr. 15min.			3	2,3,8	1 1/2
F/C-S-4	1/2"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete 1:2:4; Membrane - 16" O.C. furring clips - DEFG; Diagonal wire reinforcement; 1/2" plaster 1.5:2.5.	145 PSF	2 hr. 46min.			3	3,8	2-3/4
F/C-S-5	1/2"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete 1:2:4; Membrane - furring 16" O.C.; Clip A,B,C; No extra reinforcement; Plaster 1/2" 1.5:2.5.	145 PSF	1 hr. 4 min.			3	2,3,8	1
F/C-S-6	1/2"	- 10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete 1:2:4; Membrane - furring 16" O.C.; Clips - DEFG; Hexagonal mesh reinforcement 1/2" plaster	145 PSF	3 hr. 28min.			3	2,4,8	2-1/3

## 3.2 (cont'd)

## STEEL STRUCTURAL ELEMENTS

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-S-7	1/2"	10'x 13'6"; S.J. 103-24" O.C.; Deck 4 lb rib lath; 6"x 6"-10x 10 ga. reinforcement; 2" deck gravel concrete; Membrane - furring 16" O.C.; clips - C,E; Reinforcement - No.; 1/2" plaster - 1.5:2.5 mill mix.	N/A	55min.			3	5,8	3/4
F/C-S-8	1/2"	spec. 9'x 4'4"; S.J. 103 Bar Joists - 18" O.C.; Membrane: Furring - 3/4" C.R.S. - 16" O.C.; clips - C,E; Reinforcement - No; 1/2" plaster - 1.5:2.5 mill mix; Deck: 4 lb. rib lath base; 6"x 6" - 10x 10 ga. reinforcement; 2" deck 1:2:4 gravel concrete.	300 PSF	1 hr. 10min.			3	2,3,8	1
F/C-S-9	5/8"	10'x 13'6"; S.J. 103-24" O.C.; Deck 2" concrete 1:2:4; Membrane: furring 12" O.C.; Clips ABG; Extra "A" clips reinforcement; 5/8" plaster - 1.5:2; 1.5:3.	145 PSF	3 hr.			3	6,8	3
F/C-S-10	5/8"	18'x13'6"; Joists - S.J. - 103-24" O.C.; Deck: 4 lb. rib lath; 6"x 6" - 10x 10 ga. reinforcement; 2" deck - 1:2:3.5 gravel concrete Membrane - furring, spacing - 16" O.C.; clips C,E; Reinforcement - No; 5/8" plaster - 1.5:2.5 mill mix.	145 PSF	1 hr. 25min.			3	2,3,8	1-1/3
F/C-S-11	5/8"	10'x 13'6"; S.J. 103 - 24" O.C.; Deck 2" concrete 1:2:4; Membrane: furring 12" O.C.; clips - D,E,F,G.; Diagonal wire reinforcement; 5/8" plaster - 1.5:2; 0.5:3	145 PSF	3 hr. 15min.			3	2,4,8	3 1/2
F/C-S-12	5/8"	10'x13'6"; Joists - SJ 103 - 24" OC; Deck: 3.4 lb. rib lath; Reinforcement - 6"x6" 10 x 10 ga.; 2" deck - 1:2:4 gravel concrete; Membrane: furring 16" O.C.; Clips - D,E,F,G; No reinforcement; 5/8" plaster - 1.5:2.5.	145 PSF	1 hr.			3	7,8	1
F/C-S-13	3/4"	Spec. 9'x 4'4"; SJ 103 - 18" O.C.; Deck - 4lb. rib. lath; 6"x6" - 10 x 10 ga. reinforcement; 2" deck 1:2:4 gravel concrete; Membrane - furring 3/4" CRS 16" O.C.; Clips - C,E; Reinforcement - None; 3/4" plaster - 1.5:2.5 mill mix	300 PSF	1 hr. 56min.			3	3,8	1-3/4
F/C-S-14	7/8"	Floor finish - 1" concrete; plate cont. weld; 4" - 7.7 lb. I beams; Ceiling - 1/2" rods 12" O.C.; 7/8" gyp. sand plaster.	105 PSF	1 hr. 35min.			.6	2,4,9 10	1-1/2
F/C-S-15	1"	floor finish - 1 1/2" L.W. concrete; 1/2" lead-stone cement; plate cont. weld; 5" - 10 lb. I beams; Ceiling - 1/2" rods - 12" O.C. Tack welded to beams metal lath - 1" P.C. plaster.	165 PSF	3 hr. 20min.			6	4,9,11	
F/C-S-16	1"	10'x 13'6"; SJ 103 - 24" .C.; Deck: 2" concrete - 1:2:4; Membrane: furring 12" O.C.; clips D,E,F,G; Plaster - hexagonal mesh reinforcement; 1" thick - 1.5:2; 1.5:3.	145 PSF	4 hr. 26min			3	2,4,8	4-1/3
F/C-S-17	1"	10'x13'6"; Joists - SJ 103 - 24" O.C.; Deck 3.4 lb. rib lath; Reinforcement: 6"x6" - 10x10 ga.; 2" deck 1:2:4 gravel concrete; Membrane: furring 16" O.C.; clips D,E,F,G; 1" plaster	145 PSF	1 hr. 42min			3	2,4,8	1-2/3
F/C-S-18	1-1/8"	10'x13'6" S.J. 103 - 24" O.C.; Deck: 2" concrete 1:2:4; Membrane: furring 12" O.C.; clips C,E,F,G; Diag. wire reinforcement; 1-1/8" plaster.	145 PSF	2 hr. 44min			3	2,4,8	2-2/3
F/C-S-19	1-1/8"	10'x13'6"; Joists - S.J. 103 - 24" O.C. Deck - 1 1/2" Gypsum concrete over; 1/2" gypsum board base; Membrane furring 12" O.C. Plaster 1-1/8" 1.5:2; 1.5:3; Clips D,E,F,G.	145 PSF	1 hr. 40min			3	2,3,8	1-2/3
F/C-S-20	1-1/8"	2 1/2" cinder concrete; 1/2" topping; plate 6" welds 12" O.C.; 5" - 18.9 lb. "H" center; 5" - 10 lb "I" ends; 1" channel 18" O.C.; 1-1/8" gypsum sand plaster.	150 PSF	3 hr. 43min			6	2,4,9 11	3-2/3
F/C-S-21	1 1/2"	10'x 13'6"; Joists - SJ 103 - 24" O.C.; Deck: 1 1/2" gypsum concrete over; 1/2" gypsum board base; Membrane: furring 12" O.C. Clips D,E,F,G; 1 1/2" plaster 1.5:2; 1.5:3.	145 PSF	1 hr. 48min			3	2,3,8	1-2/3

## 3.2 (cont'd)

## STEEL STRUCTURAL ELEMENTS

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-S-22	1½"	Floor finish 1½" limestone concrete; ½" sand cement topping; plate to beam ¾"; 12" O.C. welded; 5" 10 lb "I" beam; 1" channels 18" O.C.; 1½" wood fiber gypsum sand plaster on metal lath.	292 PSF	2 hr. 45min			6	2,4,9 10	2-3/4
F/C-S-23	1½"	2½" L.W. (gas. exp.) concrete; Deck: 1/2" topping; plate 6½" welds 12" O.C.; Beams: 5"-18.9 lb. "H" center; 5"-10 lb. "I" ends; Membrane: 1" channel 18" OC; 1½" gyp. sand plaster.	150 PSF	4 hr. 42min			6	2,4,9	2-2/3
F/C-S-24	1½"	floor finish 1½" limestone concrete; ½" cement topping; plate ¾" - 12" O.C. welded; 5" - 10 lb "I" beam; Ceiling: 1" channel - 18" O.C.; 1½" gypsum plaster.	292 PSF	2 hr. 34min			6	2,4,9 10	2½
F/C-S-25	1½"	floor finish 1½" gravel concrete on exp. metal; plate - cont. weld; 4" 7.7 lb. "I" beams; Ceiling ½" rods - 12" O.C. welded to beams; 1½" fiber gypsum sand plaster.	70 PSF	1 hr. 24min			6	2,4,9 10	1-1/3
F/C-S-26	2½"	floor finish - bare plate; 6½" welding - 12" O.C.; 5"-18.9 lb. "H" girder (inner); 5" 10 lb. "I" girder (2 outer); 1" channel 18" O.C. 2" reinforced gypsum tile; ½" gypsum sand plaster.	122 PSF	1 hr.			6	7,9, 11	1
F/C-S-27	2½"	floor finish - 2" gravel concrete; plate to beam ¾" - 12" O.C. welded; 4" 7.7 lb. "I" beams; 2" gypsum ceiling tiles; ½" 1:3 gypsum sand plaster.	105 PSF	2 hr. 31 min			6	2,4,9 10	2½
F/C-S-28	2½"	floor finish - 1½" gravel concrete; ½" gypsum asphalt; plate continuous weld 4"-7.7 lb. "I" beam; 12" 31.8 lb. "I" beam - girder @ 5' from 1 end; 1" channels 18" O.C.; 2" reinforcement gypsum tile; ½" 1:3 gypsum sand plaster.	200 PSF	4 hr. 55min			6	2,4,9 11	4-2/3
F/C-S-29	3/4"	Floor: 2" rein. concrete or 2" precast rein. gypsum tile; Ceiling: 3/4" portland cement sand plaster 1:2 scratch and 1:3 brown coat with 15 lb. hydrated lime and 3 lb. of short asbestos fiber bag per cement or 3/4" sanded gypsum plaster 1:2 scratch and 1:3 brown coat	See Note 12	1 hr. 30min		1		12,13 14	1 ½
F/C-S-30	3/4"	Floor: 2½" rein. concrete or 2" rein. gypsum tile; the latter with ½" mortar finish; Ceiling: 3/4" sanded gypsum plaster; 1:2 for scratch coat and 1:3 for brown coat.	See Note 12	2 hrs		1		12,13 14	2
F/C-S-31	3/4"	Floor: 2½" rein. concrete or 2" rein. gypsum tile; the latter with ½" mortar finish; Ceiling: 1" neat gypsum plaster or 3/4" gypsum vermiculite plaster ratio of gypsum to fine vermiculite 2:1 to 3:1.	See Note 12	2 hrs 30min		1		12,13 14	2½
F/C-S-32	3/4"	Floor: 2½" rein. concrete or 2" rein. gypsum tile; the latter with ½" mortar finish; Ceiling: 1" neat gypsum plaster or 3/4" gypsum-vermiculite plaster, ratio of gypsum to fine vermiculite 2:1 to 3:1	See Note 12	3 hrs		1		12,13 14	3
F/C-S-33	1"	Floor: 2½" rein. concrete, or 2" rein. gypsum slabs, the latter with ½" mortar finish; Ceiling: 1" gypsum vermiculite plaster applied on metal lath and ratio 2:1 to 3:1 gypsum to vermiculite by weight.	See Note 12	4 hrs		1		12,13 14	4
F/C-S-34	2½"	Floor: 2" rein. concrete or 2" precast rein. portland cement concrete or gypsum slabs, precast slabs to be finished with ½" mortar top coat; Ceiling: 2" precast reinforced gypsum tile, anchored into beams with metal ties or clips and covered with ½" 1:3 sanded gypsum plaster.	See Note 12	4 hrs.		1		12,13 14	4
F/C-S-35	1"	Floor: 1:3:6 portland cement, sand, and gravel concrete applied directly to the top of steel units and 1½" thick at top of cells, plus ½" 1:2½" cement-sand finish, total thickness at top of cells, 2"; Ceiling: 1" neat gypsum plaster, back of lath 2" or more from underside of cellular steel.	See Note 15	3 hrs.		1		15,16 17,18	3

## 3.2 (cont'd)

## STEEL STRUCTURAL ELEMENTS

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-S-36	1"	Floor: Same as F/C-S-35 Ceiling: 1" gypsum vermiculite plaster (ratio of gypsum to vermiculite 2:1 to 3:1), the back of lath 2" or more from underside of cellular steel.	See Note 15	4 hrs.		1		15,16 17,18	4
F/C-S-37	1"	Floor: Same as F/C-S-35 Ceiling: 1" neat gypsum plaster; back of lath 9" or more from underside of cellular steel.	See Note 15	4 hrs.		1		15,16 17,18	4
F/C-S-38	1"	Floor: Same as F/C-S-36 Ceiling: 1" gypsum vermiculite plaster (ratio of gypsum to vermiculite 2:1 to 3:1) the back of lath being 9" or more from underside of cellular steel.	See Note 15	5 hrs.		1		15,16 17,18	5
F/C-S-39	3/4"	Floor: Asbestos paper 14 lb/100 ft. <sup>2</sup> cemented to steel deck with waterproof linoleum cement, wood screeds and 7/8" wood floor; Ceiling: 3/4" sanded gypsum plaster 1:2 for scratch and 1:3 for brown coat.	Note 19	1 hr.		1		19,20 21,22	1
F/C-S-40	3/4"	Floor: 1 1/2" 1:2:4 portland cement concrete; Ceiling: 3/4" sanded gypsum plaster 1:2 for scratch and 1:3 brown coat.	Note 19	1 hr. 30 min		1		19,20 21,22	1 1/2
F/C-S-41	3/4"	Floor: 2", 1:2:4 portland cement concrete; Ceiling: 3/4" sanded gypsum plaster, 1:2 for scratch and 1:3 for brown coat.	Note 19	2 hrs.		1		19,20 21,22	2
F/C-S-42	1"	Floor: 2", 1:2:4 portland cement-concrete; Ceiling: 1" portland cement-sand plaster with 10 lb. of hydrated lime for @ bag of cement 1:2 1/2 for brown coat, 1:2 scratch coat.	Note 19	2 hrs.		1		19,20 21,22	2
F/C-S-43	1 1/2"	Floor: 2", 1:2:4 portland cement concrete; Ceiling: 1 1/2", 1:2 sanded gypsum plaster on ribbed metal lath.	Note 19	2 hrs. 30 min		1		19,20 21,22	2 1/2
F/C-S-44	1-1/8"	Floor: 2", 1:2:4 portland cement concrete; Ceiling: 1-1/8", 1:1 sanded gypsum plaster.	Note 19	2 hrs. 30 min		1		19,20 21,22	2 1/2
F/C-S-45	1"	Floor: 2 1/2", 1:2:4 portland cement concrete; Ceiling: 1", 1:2 sanded gypsum plaster.	Note 19	2 hrs. 30 min		1		19,20 21,22	2 1/2
F/C-S-46	3/4"	Floor: 2 1/2", 1:2:4 portland cement concrete; Ceiling: 1" neat gypsum plaster or 3/4" gypsum vermiculite plaster, ratio of gypsum to vermiculite 2:1 to 3:1	Note 19	3 hrs.		1		19,20 21,22	3
F/C-S-47	1-1/8"	Floor: 2 1/2", 1:2:4 portland cement, sand and cinder concrete plus 1/2", 1:2 1/2 cement-sand finish; total thickness 3"; Ceiling: 1-1/8", 1:1 sanded gypsum plaster.	Note 19	3 hrs.		1		19,20 21,22	3
F/C-S-48	1-1/8"	Floor: 2 1/2" gas expanded portland cement-sand concrete plus 1/2", 1:2 1/2 cement-sand finish; total thickness 3"; Ceiling: 1-1/8", 1:1 sanded gypsum plaster.	Note 19	3 hrs. 30 min		1		19,20 21,22	3 1/2
F/C-S-49	1"	Floor: 2 1/2", 1:2:4 portland cement concrete; Ceiling: 1" gypsum vermiculite plaster; ratio of gypsum to vermiculite 2:1 to 3:1.	Note 19	4 hrs.		1		19,20 21,22	4
F/C-S-50	2 1/2"	Floor: 2", 1:2:4 portland cement concrete; Ceiling: 2" interlocking gypsum tile supported on upper face of lower beam flange, 1/2" 1:3 sanded gypsum plaster.	Note 19	2 hrs.		1		19,20 21,22	2
F/C-S-51	2 1/2"	Floor: 2" 1:2:4 portland cement concrete; Ceiling: 2" precast metal rein. gypsum tile 1/2" 1:3 sanded gypsum plaster (tile clipped to channels which are clipped to lower flange of beams).	Note 19	4 hrs.		1		19,20 21,22	4

TABLE 3.2  
NOTES

1. No protective membrane over structural steel.
2. Performance time indicates first end point reached only several tests were continued to points where other failures occurred.
3. Load failure.
4. Thermal failure.
5. This is an estimated time to load bearing failure. The same joist and deck specimen was used for a later test with different membrane protection.
6. Test stopped at 3 hr. to reuse specimen; No endpoint reached.
7. Test stopped at 1 hour to reuse specimen; No endpoint reached.
8. All plaster used - gypsum.
9. Specimen size - 18'x 13½'. Floor Deck - base material - ¼" x 18' steel plate welded to "I" beam.
10. I beams - 24" O.C.
11. I beams - 48" O.C.
12. Apply to open web joists, pressed steel joists, or rolled steel beams, which are not stressed beyond 18,000 lb/in.<sup>2</sup> in flexure for open-web pressed, or light rolled steel joists and 20,000 lb/in.<sup>2</sup> for American standard or heavier rolled beams.
13. Ratio of weight of portland cement to fine and coarse aggregates combined for floor slabs shall not be less than 1:6½.
14. Plaster for ceiling shall be applied on metal lath which shall be tied to supports to give the equivalent of single No. 18 gage steel wires 5" O.C.
15. Load: Maximum fiber stress in steel not to exceed 16,000 PSI.
16. Prefabricated units 2 ft. wide with length equal to the span, composed of 2 pieces of No. 18 gage formed steel welded together to give 4 longitudinal cells.
17. Depth not less than 3" and distance between cells not less than 2".
18. Ceiling: metal lath tied to furring channels secured to runner channels hung from cellular steel.
19. Load: Rolled steel supporting beams and steel plate base shall not be stressed beyond 20,000 PSI in flexure.  
Formed steel (with wide upper flange) construction shall not be stressed beyond 16,000 PSI.
20. Some type of expanded metal or woven wire shall be imbedded to prevent cracking in concrete flooring.
21. Ceiling plaster shall be on metal lath wired to rods or channels which are clipped or welded to steel construction. Lath shall be no smaller than 18 gage steel wire and not more than 7" O.C.
22. The securing rods or channels shall be at least as effective as single 3/16" rods with 1" of their length bent over the lower flanges of beams with the rods or channels tied to this clip with 14 gage iron wire.

FIGURE 3.3

## FLOOR/CEILING ASSEMBLIES WOOD JOIST

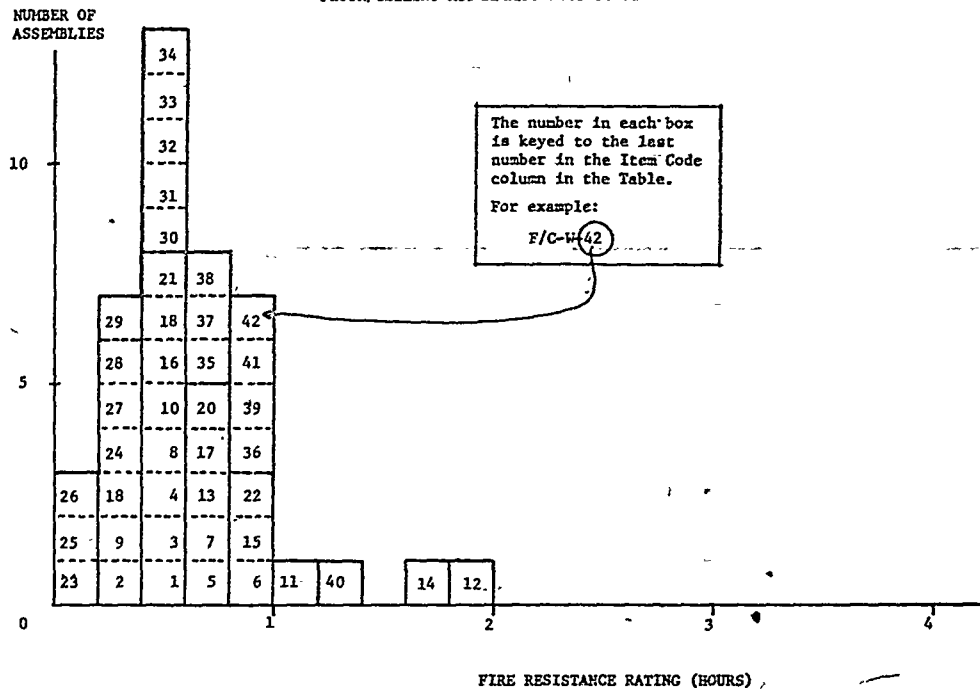


TABLE 3.3

## FLOOR/CEILING ASSEMBLIES

## WOOD JOIST

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-W-1	3/8"	12' clear span - 2"x9" wood joists - 18" O.C. Deck - 1" T&G; Filler: 3" of ashes on 1/2" boards nailed to joist sides 2" from bottom; 2" air space; Membrane 3/8" gypsum board.	60 PSF	36min.			7	1,2	1/2
F/C-W-2	1/2"	12' clear span - 2"x7" joists; 15" O.C., 2"x1 1/2" center bridging at center; Deck - 1" nominal lumber; membrane - 1/2" fiber board.	60 PSF	22min.			7	1,2,3	1/2
F/C-W-3	1/2"	12' clear span - 2"x7" wood joists, 16" O.C. 2"x1 1/2" bridging at center; deck - 1" T&G; membrane - 1/2" fiberboard; 2 coats "distemper" paint.	30 PSF	30min.			7	1,3	1/2
F/C-W-4	3/16"	12' clear span - 2"x7" wood joists, 16" O.C. 2 x 1 1/2 bridging at center span; Deck - 1" nominal lumber; membrane - 1/2" fiberboard under 3/16" gypsum plaster.	30 PSF	32min.			7	1,2	1/2
F/C-W-5	5/8"	As per previous F/C-W-4 except membrane is 5/8" lime plaster.	70 PSF	48min.			7	1,2	3/4
F/C-W-6	5/8"	As per previous F/C-W-5 except membrane is 5/8" gypsum plaster on 22 gauge 3/8" metal lath.	70 PSF	49min.			7	1,2	3/4
F/C-W-7	1/2"	As per previous F/C-W-6 except membrane is 1/2" fiberboard under 1/2" gypsum plaster.	60 PSF	43min.			7	1,2,3	2/3
F/C-W-8	1/2"	As per previous F/C-W-7 except membrane is 1/2" gypsum board.	60 PSF	33min.			7	1,2,3	1/2

## 3.3 (cont'd)

## FLOOR/CEILING ASSEMBLIES

## WOOD JOIST

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-W-9	9/16"	12' clear span - 2"x 7" wood joists; 15" O.C. 2"x 1 1/4" center bridging; Deck - 1" nominal lumber; membrane - 3/8" gypsum board; 3/16" gypsum plaster.	60 PSF	24min			7	1,2,3	1/3
F/C-W-10	5/8"	As per F/C-W-9 except membrane is 5/8" gypsum plaster on wood lath.	60 PSF	27min.			7	1,2,3	1/3
F/C-W-11	7/8"	12' clear span - 2"x 9" wood joists; 15" O.C. 2"x 1 1/4" bridging at center span; Deck - 1" T&G Membrane - original ceiling joists have 3/8" plaster on wood lath. 4" metal hangers attached below joists creating 15" chases filled with mineral wool and closed with 7/8" plaster (gypsum) on 3/8" S.W.H. metal lath to form new ceiling surface.	75 PSF	1 hr. 10min.			7	1,2	1
F/C-W-12	7/8"	12' clear span - 2"x 9" wood joists - 15" O.C. 2"x 1 1/4" bridging at center; Deck - 1" T&G; Membrane - 3" mineral wool below joists; 3" hangers to channel below joists; 7/8" gypsum plaster on metal lath attached to channels.	75 PSF	2 hr.			7	1,4	2
F/C-W-13	7/8"	12' clear span - 2"x 9" wood joists - 16" O.C. with 2" x 1 1/4" bridging at center span; Deck - 1" T&G on 1" bottoms on 3/4" glass wool strips on 3/8" gypsum board nailed to joists; Membrane 3/4" glass wool strips on joists; 3/8" perf. gypsum lath; 1/2" gypsum plaster.	60 PSF	41min			7	1,3	2/3
F/C-W-14	7/8"	12' clear span - 2" x 9" wood joists - 15" O.C. Deck - 1" T&G; Membrane - 3" foam concrete in cavity on 1/2" boards nailed to joists; wood lath nailed to 1"x 1 1/4" straps 14" O.C. across joists; 7/8" gypsum plaster.	60 PSF	1 hr. 40min.			7	1,5	1-2/3
F/C-W-15	7/8"	12' clear span - 2"x 9" wood joists - 18" O.C. Deck - 1" T&G; Membrane - 2" foam concrete on 1/2" boards nailed to joist sides 2" from joist bottom; 2" airspace; 1"x 1 1/4" wood straps 14" O.C. across joists; 7/8" lime plaster on wood lath.	60 PSF	53min.			7	1,2	3/4
F/C-W-16	7/8"	12' clear span - 2"x 9" wood joists; Deck - 1" T&G; Membrane - 3" ashes on 1/2" boards nailed to joist sides 2" from joist bottom; 2" air space; 1"x 1 1/4" straps (wood) 14" O.C.; 7/8" gypsum plaster on wood lath.	60 PSF	28min.			7	1,2	1/3
F/C-W-17	7/8"	As per previous F/C-W-16 but with lime plaster mix.	60 PSF	41min.			7	1,2	2/3
F/C-W-18	7/8"	12' clear span - 2"x 9" wood joists - 18" O.C. 2"x 1 1/4" center bridging; Deck - 1" T&G; Membrane - 7/8" gypsum plaster on wood lath.	60 PSF	36min.			7	1,2	1/2
F/C-W-19	7/8"	As per previous F/C-W-18 except with lime plaster membrane and deck is 1" nominal boards (plain edge).	60 PSF	39min.			7	1,2	1/2
F/C-W-20	7/8"	As per F/C-W-19 except deck is 1" T&G boards.	60 PSF	43min.			7	1,2	2/3
F/C-W-21	1"	12' clear span - 2" x 9" wood joists - 16" O.C. 2"x 1 1/4" center bridging; deck - 1" T&G; Membrane - 3/8" gypsum base board; 5/8" gypsum plaster.	70 PSF	29min.			7	1,2	1/3
F/C-W-22	1-1/8"	12' clear span - 2"x 9" wood joists - 16" O.C. bridging - 2"x 2" wood at center; deck - 1" T&G; membrane - hangers, channel with 3/8" gypsum baseboard affixed under 3/4" gypsum plaster.	60 PSF	1 hr.			7	1,2,3	1
F/C-W-23	3/8"	Deck: 1" nominal lumber; Joists: 2"x 7", 15" O.C.; Membrane: 3/8" plasterboard with plaster skim coat.	60 PSF	11 1/2 min.			12	2,6	1/6
F/C-W-24	1/2"	Deck: 1" T&G lumber; Joists: 2"x 9", 16" O.C.; Membrane: 1/2" plasterboard.	60 PSF	18 min			12	2,7	1/2
F/C-W-25	1/2"	Deck: 1" T&G lumber; Joists: 2"x 7", 16" O.C.; Membrane: 1/2" fiber insulation board.	30 PSF	8 min.			12	2,8	2/15

## 3.3 (cont'd)

## FLOOR/CEILING ASSEMBLIES

## WOOD JOIST

Item Code	Membrane Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-W-26	1/2"	Deck: 1" nominal lumber; Joists: 2"x 7", 15" O.C.; Membrane: 1/2" fiber insulation board.	60 PSF	8 min.			12	2,9	2/15
F/C-W-27	5/8"	Deck: 1" nominal lumber; Joists: 2"x 7", 15" O.C.; Mem.: 5/8" gypsum plaster on wood lath.	60 PSF	17 min			12	2,10	1/2
F/C-W-28	5/8"	Deck: 1" T&G lumber; Joists: 2"x 9", 16" O.C.; Mem.: 1/2" fiber insulation board; 1/2" plaster.	60 PSF	20 min			12	2,11	1/3
F/C-W-29	No Membrane	Exposed wood joists; no ceiling.	See Note 13	15 min		1		1,12, 13,14	1/2
F/C-W-30	3/8"	Gypsum wallboard- 3/8" or 1/2" with 1 1/2" No. 15 gage nails with 3/16" heads spaced 6" centers with asbestos paper applied with paperhangers paste and finished with casein paint.	See Note 13	25 min		1		1,12, 13,14	1/2
F/C-W-31	1/2"	Gypsum wallboard- 1/2" with 1-3/4" No.12 gage nails with 1/2" heads, 6" O.C. and finished with casein paint.	See Note 13	25 min		1		1,12, 13,14	1/2
F/C-W-32	1/2"	Gypsum wallboard- 1/2" with 1 1/2" No. 12 gage nails with 1/2" heads, 18" C.C. with asbestos paper applied with paper hangers paste and secured with 1 1/2" No. 15 gage nails with 3/16" heads. and finished with casein paint; combined nail spacing 6" O.C.	See Note 13	30 min		1		1,12, 13,14	1/2
F/C-W-33	3/8"	Gypsum wallboard- 2 layers 3/8" secured with 1 1/2" No. 15 gage nails with 3/8" heads, 6" O.C.	See Note 13	30 min		1		1,12, 13,14	1/2
F/C-W-34	1/2"	3/8" perforated gypsum lath- plastered with 1-1/8" No. 13 gage nails with 5/16" heads; 4" O.C.; 1/2" sanded gypsum plaster.	See Note 13	30 min.		1		1,12, 13,14	1/2
F/C-W-35	1/2"	Same as F/C-W-34. Except with 1-1/8" No. 13 gage nails with 3/8" heads; 4" O.C.	See Note 13	45 min		1		1,12, 13,14	3/4
F/C-W-36	1/2"	3/8" perforated gypsum lath nailed with 1-1/8" No. 13 nails with 3/8" heads; 4" O.C.; Joints covered with 3" strips of metal lath; with 1-3/4"; No. 12 nails with 1/2" heads; 5" O.C. 1/2" sanded gypsum plaster.	See Note 13	1 hr.		1		1,12, 13,14	1
F/C-W-37	1/2"	Gypsum lath- 3/8" and lower layer of 3/8" perforated gypsum lath nailed with 1-3/4" No. 13 nails with 5/16" heads and 4" O.C.; 1/2" sanded gypsum plaster or 1/2" portland cement plaster.	See Note 13	45 min		1		1,12, 13,14	3/4
F/C-W-38	3/4"	Metal lath - nailed with 1 1/2" NO. 11 nails with 3/8" heads or 6 d common driven 1" and bent over; 6" O.C.; 3/4" sanded gypsum plaster.	See Note 13	45 min		1		1,12, 13,14	3/4
F/C-W-39	3/4"	Same as F/C-W-38 except nailed with 1 1/2" No. 11 barbed roof nails with 7/16" heads, 6" O.C.	See Note 13	1 hr.		1		1,12, 13,14	1
F/C-W-40	3/4"	Same as F/C-W-38 except with lath nailed to joists with additional supports for lath 27" O.C.; attached to alternate joists and consisting of 2 nails driven 1 1/2", 2" above bottom on opposite sides of the joists, one loop of No 18 wire slipped over each nail; the ends twisted together below lath.	See Note 13	1 hr. 15 min		1		1,12, 13,14	1 1/2
F/C-W-41	3/4"	Metal lath with 1 1/2" No.11 barbed roof nails with 7/16" heads, 6" O.C. with 3/4" portland cement plaster for scratch and 1:3 for brown coat, 3 lb. of asbestos fiber and 15 lb. of hydrated lime/94 lb. bag of cement.	See Note 13	1 hr.		1		1,12, 13,14	1
F/C-W-42	3/4"	Metal lath nailed with 8d, 11 1/2 gage barbed box nails 2 1/2" driven 1 1/2" on slant and bent over; 6" O.C.; 3/4" sanded gypsum plaster 1:2 scratch coat and 1:3 below coat.	See Note 13	1 hr.		1		1,12, 13,14	1



TABLE 3.3

## NOTES

1. Thickness indicates thickness of first membrane protection on ceiling surface.
2. Failure mode - flame thru.
3. Failure mode - collapse.
4. No endpoint reached at termination of test.
5. Failure imminent - test terminated.
6. Joist failure - 11.5 min.; flame thru - 13.0 min., collapse - 24 min.
7. Joist failure - 17 min., flame thru - 18 min., collapse - 33 min.
8. Joist failure - 18 min., flame thru - 8 min., collapse - 30 min.
9. Joist failure - 12 min., flame thru - 8 min., collapse - 22 min.
10. Joist failure - 11 min., flame thru - 17 min., collapse - 27 min.
11. Joist failure - 17 min., flame thru - 20 min., collapse - 43 min.
12. Joists: 2"x 10" southern pine or douglas fir; No.1 common or better; Subfloor: 3/4" wood sheathing diaphragm of asbestos paper, and finish of tongue and groove wood flooring.
13. Loadings: not more than 1,000 PSI maximum fiber stress in joists.
14. Perforations in gypsum lath are to be not less than 3/4" diameter with one perforation for not more than 16/in<sup>2</sup> diameter.

FIGURE 3.4

## FLOOR/CEILING ASSEMBLIES

Hollow Clay Tile With Reinforced Concrete

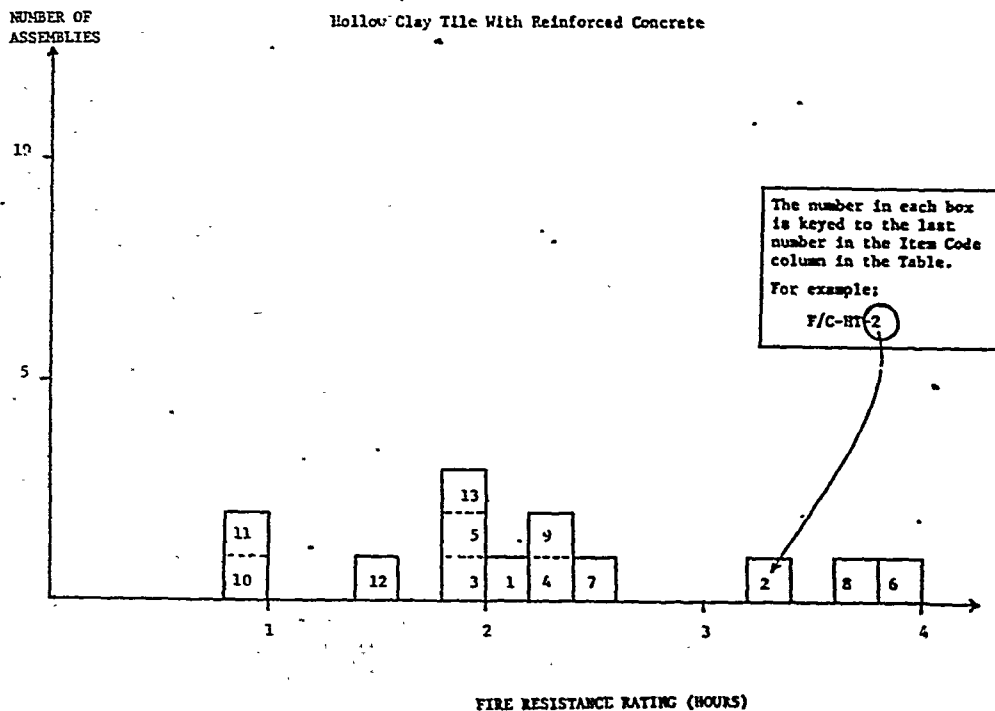


TABLE 3.4

## FLOOR/CEILING ASSEMBLIES

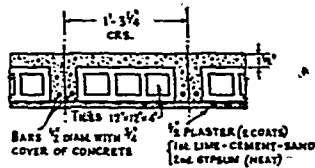
## Hollow Clay Tile with Reinforced Concrete

Item Code	Assembly Thickness	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
F/C-HT-1	6"	Cover 1½" concrete (6080 PSI); 3 cell hollow clay tile; 12"x 12"x 4"; ¾" concrete between tiles including 2- ½" rebars with ¾" concrete cover; ½" plaster cover (lower)	75 PSF	2 hr. 7 min.			7	1,2,3	2
F/C-HT-2	6"	Cover 1½" concrete (5840 PSI); 3 cells hollow clay tiles; 12"x 12"x 4"; ¾" concrete between tile including 2- ½" rebars each with ½" concrete cover and 5/8" filler tiles between hollow tiles; ½" plaster cover, lower.	61 PSF	3 hr. 23min.			7	3,4,6	3-1/3
F/C-HT-3	6"	Cover: 1½" concrete (6280 PSI); 3 cell hollow clay tiles 12"x 12"x 4"; ¾" concrete between tiles including 2- ½" rebars with ½" cover; ½" plaster cover, lower.	122 PSF	2 hr.			7	1,3,5, 8	2
F/C-HT-4	6"	Cover: 1½" concrete (6280 PSI); 3 cell hollow clay tiles; 12" x 12"x 4"; ¾" concrete between tiles including 2- ½" rebars with ¾" concrete cover; ½" plaster cover, lower.	115 PSF	2 hr. 23min.			7	1,3,7	2-1/3
F/C-HT-5	6"	Cover: 1½" concrete (6470 PSI); 3 cell hollow clay tiles 12"x 12"x 4"; ¾" concrete between tiles including 2- ½" rebars with ½" cover; ½" plaster cover, lower.	122 PSF	2 hr.			7	1,3,5, 8	2
F/C-HT-6	8"	Floor cover: 1½" gravel cement (4300 PSI); tiles: 3 cell 12"x 12"x 6"; ¾" space between tiles including 2- ½" rebars with 1" cover from concrete bottom; cover: ½" plaster, lower	165 PSF	4 hr.			7	1,3,9, 10	4
F/C-HT-7	9"(nom)	Deck: 7/8" T & G on 2"x 1½" bottoms (18" O.C.) 1½" concrete cover (4600 PSI); 3 cell hollow clay tiles 12"x 12"x 4"; 3" concrete between tiles including 1- 3/4" rebar 3/4" from tile bottom; ½" plaster cover.	95 PSF	2 hr. 26min.			7	4,11, 12,13	2-1/3
F/C-HT-8	9"(nom)	Deck: 7/8" T&G on 2"x 1½" bottoms (18" O.C.) 1½" concrete cover with 3850 PSI; 3 cell hollow clay tiles 12"x 12"x 4"; 3" concrete between tiles including 1- 3/4" rebar 3/4" from tile bottoms; ½" plaster cover.	95 PSF	3 hr. 28min.			7	4,11, 12,13	
F/C-HT-9	9"(nom)	Deck: 7/8" T&G on 2"x 1½" bottoms (18" O.C.) 1½" concrete cover (4200 PSI); 3 cell hollow clay tiles 12"x 12"x 4"; 3" concrete between tiles including 1- 3/4" rebar 3/4" from tile bottoms; ½" plaster cover.	95 PSF	2 hr. 14min.			7	3,5,8 11	
F/C-HT-10	5½"	Fire clay tile (4" thick); 1½" concrete cover. For general details see note 15.	See Note 14	1 hr.			43	15	1
F/C-HT-11	8"	Fire clay tile (6" thick); 2" cover.	See Note 14	1 hr.			43	15	1
F/C-HT-12	5½"	Fire clay tile (4" thick); 1½" cover. 5/8" gypsum plaster lower.	See Note 14	1½ hr.			43	15	1½
F/C-HT-13	8"	Fire clay tile (6" thick); 2" cover. 5/8" gypsum plaster lower.	See Note 14	2 hr.			43	15	1½

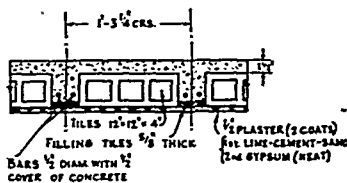
TABLE 3.4

## NOTES

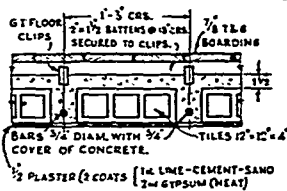
1. A generalized cross-section of this floor type follows.



2. Failure mode - structural.
3. Plaster - base coat - lime - cement - sand; top coat - gypsum (neat).
4. Failure mode - collapse.
5. Test stopped before any end points were reached.
6. A generalized cross-section of this floor type follows.



7. Failure mode - thermal -back face temperature rise.
8. Passed hose stream test.
9. Failed hose stream test.
10. Test stopped at 4 hours before any end points were reached.
11. A generalized cross-section of this floor type follows.



12. Plaster-base coat - retarded hemihydrate gypsum-sand; 2nd coat - neat gypsum.
13. Concrete in item 7 is P.C. based but with crushed brick aggregates while in item 6 river sand and river gravels are used with the P.C.
14. Load - unspecified.
15. The 12" x 12" fire-clay tiles were laid end to end in rows spaced 2 1/4" or 4" apart. The reinforcing steel was placed between these rows and the concrete cast around them and over the tile to form the structural floor.

TABLE 3.5

## FLOOR/CEILING ASSEMBLIES

## STEEL STRUCTURAL ELEMENTS (1)

## NON-STANDARD NBS TESTS FOR FIRE ABOVE FLOOR

Item Code	(2) Minimum Dimension	Construction Details	Performance		Reference Number			(3) Rec'd. Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92	
F/C-S-1a	1/2"	4" deep - 7.7 lb. I beams; 1/2" bare plate floor cont. welded seams.	105 PSF	35 min			6	1/2
F/C-S-2a	1/2"	4" deep - 7.7 lb. I beams; 1/2" bare plate floor cont. welded seams.	105 PSF	43 min			6	2/3
F/C-S-3a	3/16"	4" deep - 7.7 lb. I beams; 1/2" plate floor with 3/16" linoleum.	105 PSF	1 hr 3 min			6	1
F/C-S-4a	1/2"	5" deep - 10 lb. I beams; plate floor with 1/2" asphalt emulsion concrete.	165 PSF	1 hr. 21 min			6	1-1/3
F/C-S-5a	2"	13' span - 4" deep 7.7 lb. I beams on 4" deep 7.7 lb. I beam girder; 1/2" plate floor with 2" concrete.	203 PSF	1 hr. 40 min			6	1-2/3
F/C-S-6a	2"	13' span - 4" deep 7.7 lb. I beams on 4" deep 7.7 lb. I beam girder; 1/2" plate floor with 2" concrete topping.	184 PSF	3 hrs.			6	3

TABLE 3.5

## NOTES

1. These results are based on a series of non-standard burnout tests with fire located above the floor being tested. Time - temperature histories were used to develop a time figure equivalent to a standard fire test exposure of the duration listed. All floors included 1/2" steel plate, 18 feet long with supporting beams 24" O.C. The specimen was 13 1/2 feet wide.
2. Thickness of upper floor layer.
3. Results apply for an expected fire above floor only.

## BEAMS

## REINFORCED CONCRETE BEAMS

Depth - 10" to Less Than 12"

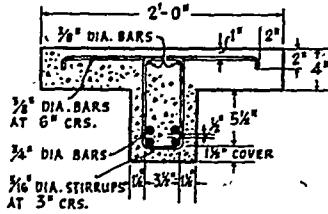
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TABLE 4.1.1

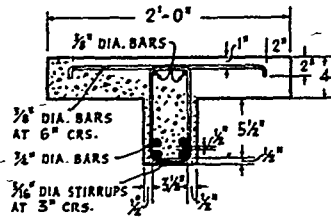
## NOTES

1. Load concentrated at mid-span.
2. Achieved 4 hour performance (Class-B, British)
3. Failure mode - collapse.
4. Achieved 6 hour performance (Class-A, British)

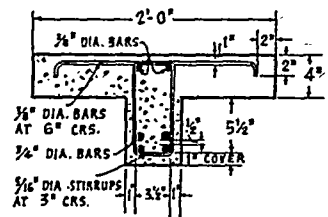
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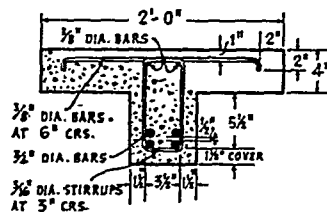
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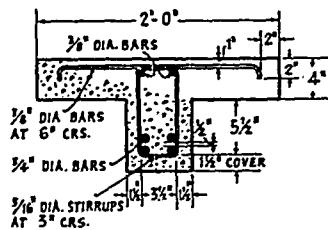
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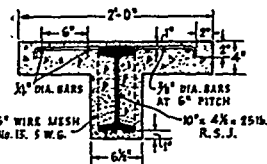
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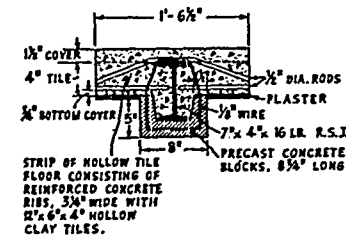
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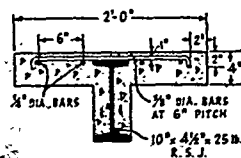
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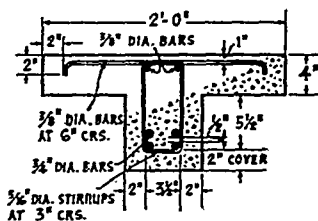
11.



12.



13.



Span and End Conditions:—10'—3" (Clear). Simply Supported.

TABLE 4.1.2

## REINFORCED CONCRETE BEAMS

Depth - 12" to Less Than 14"

Item Code	Depth	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
B-12-RC-1	12"	12"x 8" section; 4160 PSI aggregate concrete; Reinforcing 4- 7/8" rebars at corners; 1" below each surface; 1/2" stirrups 10" O.C.	5.5 tons	2 hr.			7	1	2
E-12-RC-2	12"	Concrete flange: 4" deep x 2' wide (3045 PSI) @ 35 days; Concrete beam: 8" deep; I beam reinforcement: 10"x 4 1/2"x 25 lb. R.S.J.; 1" cover on flanges; Reinforcement: Flange 3/8" diam. bars @ 6" pitch parallel to T; flange 1/2" diam. bars perpendicular to T; beam 4"x 6" wire mesh #13 S.W.G.; Span: 10'3" simply supported.	10 tons	4 hr.			7	2,3 5	4
B-13-RC-3	13"	Concrete flange: 4" deep x 2' wide; (3825 PSI) @ 46 days; Concrete beam: 9" deep x 8 1/2" wide; (scaled from avg.); I beam reinforcement: 10"x 4 1/2"x 25 lb. R.S.J.; 3" cover on bottom flange 1" cover on top flange; Reinforcement: flange 3/8" diam. bars @ 6" pitch, parallel to T; 1/2" diam. bars perpendicular to T; Beam 4"x 6" wire mesh #13 S.W.G.; Span 11' restrained.	10 tons	6 hr.			7	2,3 6	6
B-12-RC-4	12"	Concrete flange: 4" deep x 2' wide; (3720 PSI) @ 42 days; Con. beam: 8" deep x 8 1/2" wide; (scaled from avg.) I beam reinforcement: 10"x 4 1/2"x 25 lb. R.S.J.; 2" cover bottom flange; 1" cover top flange; Reinforcement: flange 3/8" diam. bars @ 6" pitch parallel to T; 1/2" diam. bars perpendicular to T; beam 4"x 6" wire mesh, #13-S.W.G.; Span: 11' restrained.	10 tons	6 hr.			7	2,3,4 7	6

TABLE 4.1.2

## NOTES

1. Qualified for 2 hr. use. (Grade C - British) test included hose stream and reload at 48 hours.
2. Load concentrated at mid-span.
3. British test.
4. British test - qualified for 6 hour use (Grade A).

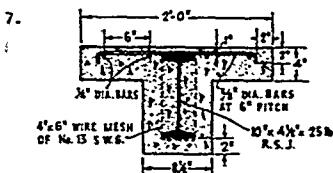
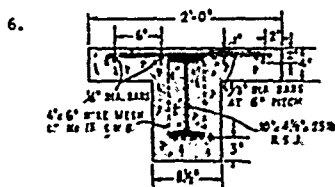
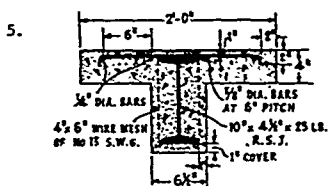


TABLE 4.1.3

## REINFORCED CONCRETE BEAMS

Depth - 14" to Less Than 16"

Item Code	Depth	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-BMS-92	BMS-92	Post-BMS-92		
B-15-RC-1	15"	Concrete Flange: 4" Deep x 2' wide; (3290 PSI) concrete; Concrete beam: 10" deep x 8½" wide; I beam reinforcement: 10"x 4½" x 25 lb. R.S.J.; 4" cover on bottom flange; 1" cover on top flange; Reinforcement: Flange 3/8" diam. bars @ 6" pitch parallel to T; ½" dia. bars perpendicular to T; beam 4"x 6" wire mesh No. 13 S.W.G.; Span: 11' restrained.	10 tons	6 hr.			7	1,2 3	6
B-14-RC-2	14"	Concrete flange: 4" deep x 2' wide (4820 PSI) concrete; Concrete beam: 10" deep x 8½" wide; I beam reinforcement: 10"x 4½" x 25 lb. R.S.J.; 1" cover on flanges; Reinforcement: Flange 3/8" diam. bars @ 6" pitch parallel to "T"; ½" dia. bars perpendicular to "T"; beam 4"x 6" wire mesh No. 13 S.W.G.; Span: 11' restrained.	10 tons	6 hr.			7	1,2 4	6

TABLE 4.1.3

## NOTES

1. Load concentrated at mid-span.
2. Achieved 6 hour fire rating (Class "A" - British).
- 3.

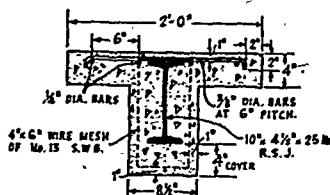
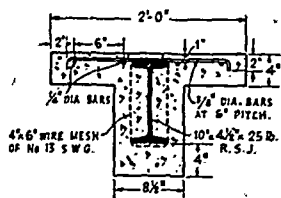




TABLE 4.2.1

## STEEL BEAMS - UNPROTECTED

Depth - 10" to Less Than 12"

Item Code	Depth	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-EMG-92	EMG-92	Post-EMG-92		
B-SU-1	10"	10"x 4 1/2"x 25 lb. "I" beam.	10 tons	39min			7	1	1/3

TABLE 4.2.1

## NOTES

1. Concentrated at midspan.

TABLE 4.2.2

## STEEL BEAMS - CONCRETE PROTECTION

Depth 10" to Less Than 12"

Item Code	Depth	Construction Details	Performance		Reference Number			Notes	Rec Hours
			Load	Time	Pre-EMG-92	EMG-92	Post-EMG-92		
B-SC-1	10"	10"x 8" rectangle. Aggregate concrete (4170 PSI) with 1" cover - top and 2" cover bottom; No. 13 S.W.G. iron wire loosely wrapped at approximately 6" pitch about 7"x 4"x 16 lb. I beam.	3.9 tons	3 hr. 46min			7	1,2,3	3-3/4
B-SC-2	10"	10"x 8" rectangle. Aggregate concrete (3630 PSI) with 1" cover - Top and 2" cover bottom; No. 13 S.W.G. iron wire loosely wrapped at approx. 6" pitch about 7"x 4"x 16 lb. I beam.	5.5 tons	5 hr. 26min			7	1,4,5	

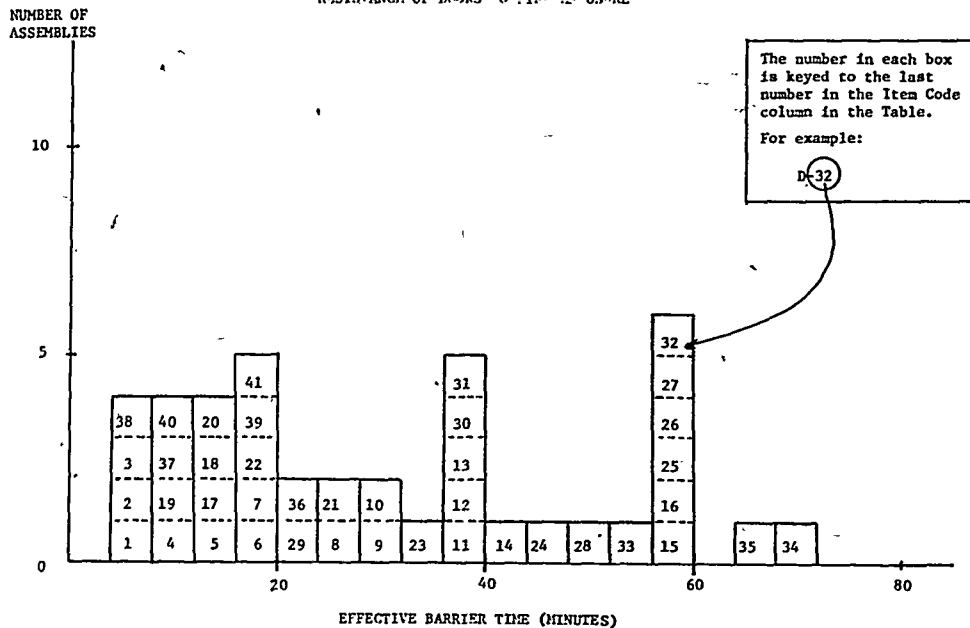
TABLE 4.2.2

## NOTES

1. Load concentrated at midspan.
2. Specimen 10'3" clear span simply supported.
3. Passed grade "C" fire resistance (British) including hose stream and reload.
4. Specimen 11' clear span - restrained.
5. Passed "Grade B" fire resistance (British) including hose stream and reload.

## SECTION V

## DOORS AND DOOR MATERIALS

FIGURE 5.1  
RESISTANCE OF DOORS TO PIPE EXPOSURETABLE 5.1  
(12)  
RESISTANCE OF DOORS TO FIRE EXPOSURE

Item Code	Door Minimum Thickness	Construction Details	Performance		Reference Number			Notes	Rec (min.)
			Effective Barrier	Edge Flaming	Pre-BMS-92	BMS-92	Post-BMS-92		
D-1	3/8"	Panel door, pine perimeter (1-3/8"). Painted (enamel).	5 min. 10 sec	n/a			90	1,2	5
D-2	3/8"	As above, with 2 coats U.L. listed intumescent coating.	5 min. 30 sec	5 min.			90	1,2,7	5
D-3	3/8"	As D-1 with standard primer and flat interior paint.	5 min. 55 sec	n/a			90	1,3,4	5
D-4	2-5/8"	As D-1 with panels covered each side with 1/2" plywood, edge grouted with sawdust filled plaster; door faced with 1/8" hardboard each side; paint see (5)	11 min 15 sec	3 min 45 sec			90	1,2,5,7	10
D-5	3/8"	As D-1 but surface protected with glass fiber reinforced intumescent fire retardant coating.	16 min	n/a			90	1,3,4,7	15
D-6	1-5/8"	Door detail: As D-4 but with 1/8" cement asbestos board facings with aluminum foil. Door edges protected by sheet metal.	17 min 15 sec	10 min. 15 sec.			90	1,3,4	15
D-7	1-5/8"	Door detail with 1/8" hardboard cover each side as facings. Glass fiber reinforced intumescent coating applied.	20 min	n/a			90	1,3,4,7	20
D-8	1-5/8"	Door detail as D-4. Paint was glass reinforced Epoxy intumescent.	26 min 45 sec.	24 min. 45 sec.			90	1,3,4,6,7	25

## 5.1 (cont'd)

## RESISTANCE OF DOORS TO FIRE EXPOSURE

Item Code	Door Minimum Thickness	Construction Details	Performance		Reference Number		Rec Notes (min.)
			Effective	Edge Flame Barriering	Pre-BMS-92	Post-BMS-92	
D-9	1-5/8"	Door detail as D-4 with facings of 1/8" cement asbestos board.	29 min.	3 min 15 sec		90	1,2 5
D-10	1-5/8"	As per D-9.	31 min.	7 min 30 sec		90	1,3,4 6
D-11	1-5/8"	As per D-7 painted with epoxy intumescent coating including glass fiber roving.	36 min.	n/a 25 sec		90	1,3,4 35
D-12	1-5/8"	As per D-4 with intumescent fire retardant paint.	37 min.	24 min 30 sec		90	1,3,4 30
D-13	1 1/2 (nom)	As per D-4 but with 24 ga. galv. sheet metal facings.	39 min.	39 min		90	1,3,4 39
D-14	1-5/8"	As per D-9.	41 min.	17 min 30 sec		90	1,3,4 20
D-15	—	Class C steel fire door.	60 min.	58 min.		90	7,8 60
D-16	—	Class B steel fire door.	60 min.	57 min.		90	7,8 60
D-17	1-3/4"	Solid core flush door; core staves laminated to facings but not each other. Birch plywood facings 1/2" rebate in door frame for door; 3/32" clearance between door and wood frame.	15 min.	13 min		37	11 13
D-18	1-3/4"	As per D-17	14 min.	13 min		37	11 13
D-19	1-3/4"	Door as per D-17; but with 16 ga. steel; 3/32" door frame clearance.	12 min.	—		37	9,11 10
D-20	1-3/4"	As per D-19.	16 min.	—		37	10,11 10
D-21	1-3/4"	Door as per D-17 intumescent paint applied to top and side edges.	26 min.	—		37	11 25
D-22	1-3/4"	Door as per D-17 but with 1/2"x1/8" steel strip set into edges of door at top and side facing stops. Matching strip on stop.	18 min.	6 min		37	11 18
D-23	1-3/4"	Solid Oak Door	36 min.	22 min.		15	13 25
D-24	1-7/8"	Solid Oak Door	45 min.	35 min.		15	13 35
D-25	1-7/8"	Solid Teak Door	58 min.	34 min.		15	13 35
D-26	1-7/8"	Solid (Pitch) Pine Door	57 min.	36 min.		15	13 35
D-27	1-7/8"	Solid Deal (Pine) Door	57 min.	30 min.		15	13 30
D-28	1-7/8"	Solid Mahogany Door	49 min.	40 min.		15	13 45
D-29	1-7/8"	Solid Poplar Door	24 min.	3 min.		15	13,14 5
D-30	1-7/8"	Solid Oak Door	40 min.	33 min.		15	13 35
D-31	1-7/8"	Solid Walnut Door	40 min.	15 min.		15	13 20
D-32	2-5/8"	Solid Quebec Pine	60 min.	60 min.		15	13 60
D-33	2-5/8"	Solid Pine Door	55 min.	39 min.		15	13 40

## 5.1 (cont'd)

## RESISTANCE OF DOORS TO FIRE EXPOSURE

Item Code	Door Minimum Thickness	Construction Details	Performance	Reference Number		Notes	Rec (min.)
			Effec- Edge tive Flash- Barrier ing	Pre- BMS-92-HMS -92	Post- HMS-92		
D-34	2-5/8"	Solid Oak Door	69 min 60min		15	13	60
D-35	2-5/8"	Solid Teak Door	65 min 17min		15	13	60
D-36	1 1/4"	Solid Softwood Door	23 min 8 1/2 min		15	13	10
D-37	3/4"	Panel Door	8 min 7 1/2 min		15	13	5
D-38	5/16"	Panel Door	5 min 5 min		15	13	5
D-39	3/4"	Panel Door - Fire Retardant Treated	17 1/2 min 13min		15	13	8
D-40	3/4"	Panel Door - Fire Retardant Treated	8 1/2 min 8 1/2 min		15	13	8
D-41	3/4"	Panel Door - Fire Retardant Treated	16-3/4 11 1/2 min. min.		15	13	8

TABLE 5.1

## NOTES

1. All door frames were of standard lumber construction.
2. Wood door stop protected by asbestos millboard.
3. Wood door stop protected by sheet metal.
4. Door frame protected with sheet metal and weather strip.
5. Surface painted with intumescent coating.
6. Door edge sheet metal protected.
7. Door edge intumescent paint protected.
8. Formal steel frame and door stop.
9. Door opened into furnace at 12'.
10. Similar door opened into furnace at 12'.
11. The doors reported in these tests represent the type contemporaries used as 20 minute solid core wood doors. The test results demonstrate the necessity of having wall anchored metal frames, minimum clearances possible between door, frame and stops. They also indicate the utility of long throw latches and the possible use of intumescent paints to seal doors to frames in event of a fire.
12. Minimum working clearance and good latch closure are absolute necessities for effective containment for all such working door assemblies.
13. Based on British Tests.
14. Failure at door - frame interface.

FIGURE 5.2

## RESISTANCE OF DOOR MATERIALS OF VARIOUS THICKNESS TO FIRE PENETRATION

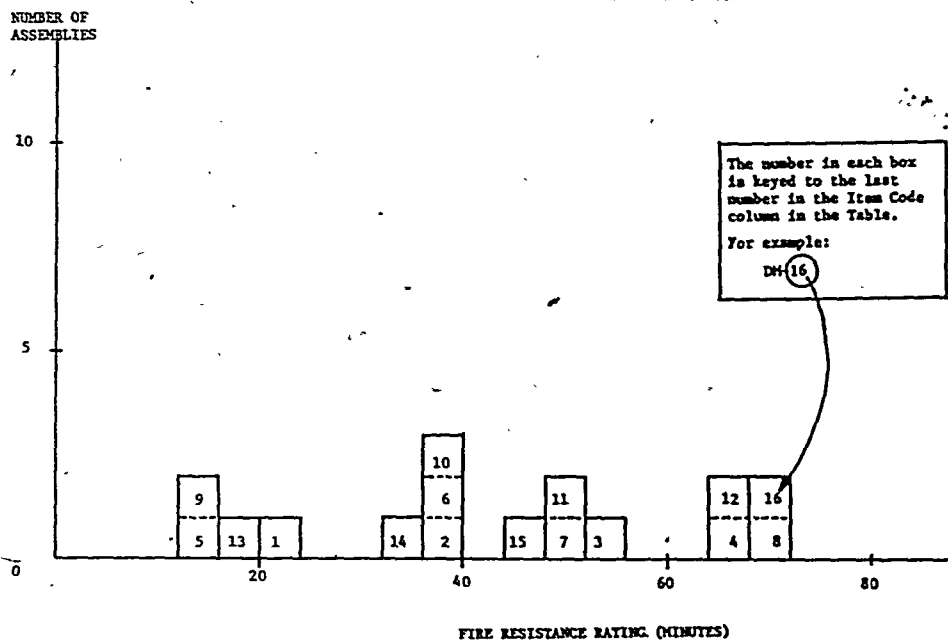


TABLE 5.2

 RESISTANCE OF DOOR MATERIALS  
 OF VARIOUS THICKNESS TO FIRE PENETRATION (1)

Item Code	Thickness	Construction Details	Performance	Reference Number			Notes	Rec (min.)
			Flame thru (min.)	Pre-BMS-92	BMS-92	Post-BMS-92		
DM-1	1/2"	Teak	21			15		20
DM-2	1"	Teak	39 1/2			15		35
DM-3	1 1/2"	Teak	53 1/2			15		50
DM-4	2"	Teak	68			15		65
DM-5	1/2"	Spruce	16			15		15
DM-6	1"	Spruce	37			15		35
DM-7	1 1/2"	Spruce	49 1/2			15		45
DM-8	2"	Spruce	70			15		70
DM-9	1/2"	"Baltic Redwood" (a pine wood)	13 1/2			15		10
DM-10	1"	"Baltic Redwood" (a pine wood)	36 1/2			15		35
DM-11	1 1/2"	"Baltic Redwood" (a pine wood)	47			15		45
DM-12	2"	"Baltic Redwood" (a pine wood)	65 1/2			15		65
DM-13	1/2"	Baltic Redwood (a pine wood) treated with a water soluble fire retardant salt solution.	16 1/2			15		15

## 5.2 (cont'd)

## RESISTANCE OF DOOR MATERIALS OF VARIOUS THICKNESS TO FIRE PENETRATION

Item Code	Thickness	Construction Details	Performance	Reference Number			Notes	Rec (min.)
			Flame thru (min.)	Pre-BMS-92	BMS-92	Post-BMS-92		
DM-14	1"	Baltic Redwood (a pine wood) treated with a water soluble fire retardant salt solution.	32½			15		30
DM-15	1½"	Baltic Redwood (a pine wood) treated with a water soluble fire retardant salt solution.	45			15		45
DM-16	2"	Baltic Redwood (a pine wood) treated with a water soluble fire retardant salt solution.	69			15		65

TABLE 5.2

## NOTES

1. These are guideline figures only for such solid wood materials. Workmanship, hardware condition and good door closure must exist. It is also advised that an intumescent coating be applied to door edges (top and sides) and stop surfaces contacting door if such figures are to be applied as indicated.